Proposed Waste Transfer Station and Landfill Site, Lower Challonsleigh Farm, Smithaleigh

Air Quality, Dust and Odour Impact Assessment

Dorton Group

February 2017

Notice

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1. Introduction

Background

1.1 Atkins Ltd. has been commissioned by Dorton Group to undertake an air quality, dust and odour impact assessment in support of a planning application regarding the proposed Waste Transfer Station, including buildings and compound, and Landfill Site at Lower Challonsleigh Farm, Smithaleigh, Devon.

1.2 The proposed Waste Transfer Station will be located at Dorton Group's existing site and will create improved facilities for the recycling (by sorting, screening, and crushing) of demolition and construction materials. A concrete finished apron will be located around the main Waste Transfer Station building and the associated compound is surrounded on all four sides by a earth bund, with a gap for the main vehicular access point in the north-west corner of the site. Inert waste that cannot be recycled will be placed on the proposed Landfill Site to the north of Dorton Group's existing site or exported; the Landfill will be completed in phases and will have a temporary 3m high earth bund surrounding it.

1.3 The purpose of this assessment is to consider the potential air quality and dust impact of the proposed development upon neighbouring potentially sensitive receptors; potential odour impacts are also briefly considered. The assessment has been undertaken following guidance provided in the Air Quality Regulations and the Highways Agency's Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 1 (May 2007), and has also been prepared with reference to the National Planning Policy Framework (2012), Planning Practice Guidance 32 *Air Quality* (2014), and relevant policies of the Devon Waste Plan and South Hams District Council's planning documents.

1.4 This report describes the policy context, standards, assessment criteria and methodology used to assess the potential air quality, dust and odour impact of the proposed development. The baseline condition of the proposed development site is described in terms of existing background air quality data and existing visual observations regarding dust in the vicinity of the site. Potential air quality impacts have been assessed in relation to the predicted traffic levels associated with the proposals and potential dust levels generated by the proposals have been estimated via knowledge of Dorton Group's existing operations at Lower Challonsleigh Farm and Atkin's experience of similar Waste Transfer Stations and landfill sites with equivalent operations to those proposed. The assessment has then considered the potential effects of the proposed development on surrounding receptors potentially sensitive to air quality and dust, N.B. residential properties, during both the construction and operational phases of the project. Where appropriate, mitigation measures are recommended to prevent or reduce the significance of any potential impacts.

1.5 This report should be read in conjunction with the planning application documents and associated drawings pertaining to the proposed development, as submitted to South Hams District Council.

Site Description and Site Setting

Site Description

1.6 The proposed development site is located south of the A38 Devon Expressway at Lower Challonsleigh Farm, Smithaleigh (near Lee Mill, Ivy Bridge) and is sited immediately to the east and south-east of 2no. existing waste management facilities operated by SITA UK Ltd and Wood Yew Waste Ltd, as shown in Appendix A.1 and Appendix A.4. The National Grid Reference for the approximate centre of the site is SX 595,552 (Easting 25959279, Northing 05520475), with the nearest Post Code being PL7 5AX.

1.7 The proposed Waste Transfer Station (WTS) Compound will encompass the site of Dorton Group's existing recycling facilities at Lower Challonsleigh Farm, and will also include an additional area which is currently rough grassland. The WTS Compound has a fall in elevation from north to south (i.e. 60m to 55m). This part of the proposed site is currently bounded by established vegetation on all four sides, with trees on the NW and SW boundaries, and with the existing access track located in the NW corner.

1.8 The proposed Landfill Site is currently predominantly farmland, with some rough grassland to the south, and is currently predominantly bounded by established vegetation on all four sides, with intervening hedgerows across the site and the access track running alongside the western boundary. This part of the proposed site currently has a slight fall in elevation from the NW to the SE and from the SW to the NE, with the central area being the lowest.

Site Setting

1.9 The existing waste management facilities operated by SITA UK Ltd and Wood Yew Waste(WYW) are located approximately 70-180m to the west of the proposed scheme, with Lower Challonsleigh Farmhouse being located approximately 91m to the north-west of Phase 1 of the Landfill. The A38 runs alongside the northern boundary of the proposed Landfill (Phase 1). To the north-east of the site, and to the north of the A38, lies Lee Mill which includes residential and commercial properties and an industrial estate, with rural farmland and sporadic residential properties beyond.

1.10 Dorton Group's existing recycling facilities are located at the site of the proposed WTS Compound. The Strashleigh Hams Inert Processing and Recycling Facility, operated by Jeremy Bishop Haulage Ltd, is located approximately 80m to the east of the proposed Landfill Site. A small energy park is located approximately 685m to the south-west of the proposed WTS Compound, at Choakford Corner.

1.11 Landuse to the east, south and west of the site is predominantly rural farmland, with sporadic residential properties.

1.12 The village of Smithaleigh is located to the north-west of the site and includes dwellings, a garage, The Smithaleigh Hotel and Smithaleigh Caravan and Camping Park.

1.13 The existing air quality in the local area is primarily influenced by traffic on the A38 Devon Expressway, with additional potential existing sources including other local traffic, farming activities, and existing operations in the vicinity of the proposed site, including the three current waste facilities at Lower Challonsleigh Farm and at the Strashleigh Hams Inert Processing and Recycling Facility, as indicated in Appendix A.4. However, existing levels of nitrogen dioxide (NO_2) and particulate matter (PM_{10}) values are well below the EU limit and National Air Quality Strategy annual mean objectives of 40µg/m^3 per calendar year and the proposed site is not located within an Air Quality Management Area. Current activities at the three existing waste facilities at Lower Challonsleigh Farm and at the neighbouring Strashleigh Hams facility will contribute some dust to the immediate vicinity, but not at any levels that are cause for concern.

1.14 There have been no known complaints regarding dust associated with Dorton Group's existing waste processing activities at Lower Challonsleigh Farm, which have included stone crushing and sorting at the proposed WTS site.

1.15 There have been no known complaints or issues regarding odour associated with Dorton Group's existing waste management facility at Lower Challonsleigh Farm and none are anticipated from either the proposed Waste Transfer Station or the Landfill Site since the nature of the inert materials to be handled are non-odorous. Therefore, odour from both the operational and construction phases of the proposed scheme are not considered any further in this assessment report.

Scheme Proposal

Facilities

1.16 The proposed WTS Compound will include the main processing building, and 2no. office buildings, with a separate welfare facilities building. The main building will be approximately 8m in height to the eaves and approximately 62m by 31m in dimension, with vehicular access doors on the western and eastern facades. External facilities will include a weighbridge (with office), moveable aggregate storage bays, a secure asbestos bulking area and a soil treatment and storage area.

1.17 A concrete finished apron will be provided in the main operating areas around the main buildings, and the WTS Compound is bounded by an existing earth bund on all four sides, with a main vehicular gated access point in the north-western corner of the site.

1.18 The proposed Landfill Site will be accessed from the existing access road, HGVs having first visited the weighbridge at the proposed WTS Compound. The Landfill Site will have a temporary 3m high earth bund along its northern, eastern and western boundaries.

1.19 The proposed site layout is identified in the following planning application drawings, copies of which are provided in Appendix A.2 and Appendix A.3 respectively:

- 5149237-ATK-XX-ZZ-DR-C-0029 – Proposed Landfill Phases; and
- 5149237-ATK-XX-ZZ-DR-C-0006 - Proposed Site Plan WTS Recycling Facility & Site Layout.

Use

1.20 The proposed development will create facilities for the sorting, screening, crushing and transfer of construction and demolition waste, the processing of aggregates & appropriate handling of asbestos.

1.21 Inert waste that cannot be recycled will be placed on the proposed Landfill Site to the immediate north of Dorton Group's existing site.

1.22 It is currently intended that the proposed scheme will provide improved facilities to supplement those already operated by Dorton Group at the site of the proposed WTS Compound.

Hours of Operation

1.23 The proposed operating hours are as follows:

- Monday to Friday: 07:30 to 18:00 hours; and
- Saturdays: 08:00 to 13:00 hours.

1.24 Dorton Group will adhere to these standard working hours as far as is reasonably practicable. However, for certain temporary activities, it may be necessary to work outside of these hours. In this instance, Dorton Group will apply to South Hams District Council for written consent prior to such work commencing, and inform local residents in advance of the proposed activity concerned as appropriate.

Traffic Volumes

1.25 The facilities will receive up to 10 - 11 lorries to the WTS and Landfill Site per hour. (20 – 22 trips)

1.26 The WTS will employ 10no. members of staff and the Landfill Site will employ 1no. person. The traffic data has assumed that each will drive to work individually and leave the site once during the working day. The data also assumes that Light Goods Vehicles make up 10% of all service vehicles to and from the Waste Transfer element of the site.

1.27 5no. on-site parking spaces for staff and visitors will be provided at the WTS Compound.

Access and Routing

1.28 Access to the site will be via the current main access road to the existing 3no. waste facilities at Lower Challonsleigh Farm, which itself links with the A38 Devon Expressway to the north of the site, as shown in Appendix A.4. It is proposed that this shared main access road will be tarmacked to reduce dust and enhance vehicle maintenance.

1.29 The proposed landfill will be accessed from the existing main access road via two access points, either side of the established hedgerow which divides Phase 1 from the other proposed landfill phases, as shown in Appendix A.2. This arrangement will preclude the need to provide any new crossings over the watercourse.

1.30 The proposed WTS site itself will have one vehicular entrance / egress in its north-western corner, as shown in Appendix A.3, which will be tarmacked and gated. It is proposed to operate a one-way system on-site.

1.31 It is proposed to require that large vehicles arriving at the site from the A38 west do not travel through Lee Mill, but, in a similar arrangement to vehicles leaving the site to travel east, make a 'U-turn' at the next junction. This would add some vehicular traffic to the Ivybridge west junction, but at less than ten vehicle movements, this is not considered to be a material impact.

1.32 To make this a self-enforcing constraint, it is proposed that the right turn at the centre of Lee Mill, that facilitates the A38 'U-turn' in the village, is made subject to a weight ban. There is no other convenient location within Lee Mill to make a 'U-turn' so that a large vehicle can turn left under the A38, so large vehicles would need to travel on to the Ivybridge junction in order to turn.

Consultations

1.33 As the relevant Waste Planning Authority, Devon County Council (DCC) have provided a Screening Opinion and Pre-Application Advice regarding the scheme proposals, relevant aspects from which are summarised below and duly considered, as appropriate, in this report and submitted design.

DCC Screening Opinion

1.34 In relation to Paragraph 1(e) of Schedule 3 of the Environmental Impact Assessment (EIA) Regulations 2017 DCC's Screening Opinion, dated 11th July 2017, identified dust generated by the proposed scheme as being one of the topics with potential to cause significant pollution / nuisance, stating that '*the magnitude of these has the potential to be significant and there is potential for them to impact the nearby 'sensitive areas"* (Page 7). The Screening Opinion did not specifically identify odour associated with the proposals as having particular potential to be a significant cause of pollution / nuisance.

1.35 In relation to Paragraph 1(g) of Schedule 3 of the EIA Regulations 2017 the Screening Opinion considered that the proposed development would not have any risk to human health from air pollution.

DCC Pre-Application Advice Form

1.36 DCC also provided Pre-Application Advice, dated 10th and 11th July 2017, which stated that the consulted Environmental Health Officer from South Hams District Council (SHDC) generally accepted the conclusions of the submitted Dust Assessment, but also offered the following comments:

- *These conclusions include an identified need for standard mitigation measures (such as those given in IAQM guidance and within the Dust Impact Assessment), should dust become a problem, which is very important.*
- *The document refers to a lack of dust complaints arising from existing waste activities on the adjacent site which is true as far as I know but, I have seen visible dust emissions arising from that site in past years.*
- *The Assessment refers to rainfall data for Ivybridge for the years 2000-2012 as an argument that dust will naturally be controlled to an extent. Although this is a fair argument, it is possible that rainfall patterns are changing and therefore artificial dust mitigation could be even more essential in future. A supply of water on site for water suppression is vital*.
- *Any mobile crusher used on site will need to be permitted under the Environmental Permitting Regulations*.
- *Ecology experts should be consulted on the predicted impacts on natural ecology*.
- *Regarding HGV traffic, this assessment says that it will not travel through Lee Mill. So if the HGV traffic is to be re-routed, I would like to know where so, for example, if east-bound traffic is planned to be re-routed via the Ivybridge junction, there may be a requirement for a further Air Quality Assessment on any potential 'knock-on' effects on the Air Quality Management Area (AQMA) at Western Road, Ivybridge*.

1.37 SHDC's Environmental Health Department also considered that based on the scale of the operation and the number of vehicle movements proposed, in addition to the submitted Dust Report, an air quality assessment will be required in accordance with the latest guidance from the Institute of Air Quality Management (IAQM). If traffic is to be routed via the Ivybridge Junction, any potential effects on the Air Quality Management Area at Western Road will need to be assessed.

1.38 Odour is only mentioned in the Pre-Application Advice as one of the items to be considered in a Pollution Control Statement; these items also include dust.

1.39 The Pre-Application Advice states that it must be read in conjunction with DCC's Validation Requirements. As such, Section 3.14 Air Quality and Section 3.11 Construction of DCC's 'Validation Requirements for Planning Applications, Draft', August 2017 has been considered and is addressed in the current report.

2. Policy Context and Assessment Guidance

2.1. This section summarises the national and local planning policy context of the proposed development, with particular consideration of those policies relevant to dust.

Legislative Context

2.2. Key legislation regarding dust includes:

- *Environmental Protection Act 1990, Part III, as amended by the Noise and Statutory Nuisance Act 1993; and the*
- Control of Pollution Act 1974, as amended.

2.3. The Environmental Protection Act 1990 Part III, Section 79 defines a statutory nuisance as follows:

1d) *any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance*;

Policy Context: National

National Planning Policy Framework 2012

2.4. Within England the principal source of guidance with regard to planning is the National Planning Policy Framework (NPPF), published on 27th March 2012[1].

2.5. Paragraph 109 of the NPPF, requires that the planning system should contribute to and enhance the natural and local environment by '*preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability*'. Pollution, including dust, odour, smoke, fumes, gases and steam, is defined as anything that affects the quality of land, air, water or soils which might lead to an adverse impact on human health, the natural environment or general amenity.

2.6. In support of this, NPPF Paragraph 124 states that '*planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan*'.

1 https://www.gov.uk/government/publications/national-planning-policy-framework--2.

Planning Practice Guidance

2.7. Planning Practice Guidance (PPG) has been revised and updated and is now readily available online[2]. PPG 32 *Air Quality* was updated on 6th March 2014 and provides guiding principles on how planning can take account of the impact of new development on air quality[3]; relevant aspects from this guidance are summarised below.

Planning Practice Guidance 32 – Air Quality 2014

2.8. Paragraph 001 of PPG32 states that dust can be a planning concern, for example, because of the effect on local amenity.

2.9. When deciding whether air quality is relevant to a planning application, Paragraph 005 of PPG32 suggests that considerations could include whether the development would:

- Significantly affect traffic in the immediate vicinity of the proposed development site or further afield. This could be by generating or increasing traffic congestion; significantly changing traffic volumes, vehicle speed or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal [could] result in construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more;
- Introduce new point sources of air pollution;
- Expose people to existing sources of air pollutants;
- Give rise to potentially unacceptable impact (such as dust) during construction for nearby sensitive locations; and / or
- Affect biodiversity.

2.10. PPG32 – Paragraph 007 states that '*assessments should be proportionate to the nature and scale of development proposed and the level of concern about air quality, and because of this are likely to be locationally specific*.

2.11. PPG32 – Paragraph 008 identifies that mitigation options, where necessary, will be locationally specific, will depend on the proposed development and should be proportionate to the likely impact. It is important therefore that local planning authorities work with applicants to consider appropriate mitigation so as to ensure the new development is appropriate for its location and unacceptable risks are prevented. Planning conditions and obligations can be used to secure mitigation where the relevant tests are met.

2.12. PPG32 – Section 8 states that examples of mitigation include:

- the design and layout of development to increase separation distances from sources of air pollution;
- using green infrastructure, in particular trees, to absorb dust and other pollutants;
- means of ventilation;
- promoting infrastructure to promote modes of transport with low impact on air quality;
- controlling dust and emissions from construction, operation and demolition; and
- contributing funding to measures, including those identified in air quality action plans and low emission strategies, designed to offset the impact on air quality arising from new development.

2 http://planningguidance.communities.gov.uk.
3 https://www.gov.uk/guidance/air-quality--3.

Policy Context: Local

Devon County Council

2.13. As the relevant Waste Planning Authority, Devon County Council have produced the Devon Waste Plan, which covers the period to 2031, and was adopted in December 2014.

2.14. The role of the Devon Waste Plan (DWP) is to establish the overarching principles and policy direction for waste planning in Devon; the DWP also identifies strategic sites for energy recovery across the County and a series of planning policies for making decisions on planning applications.

2.15. Policy W18: *Quality of Life* aims to protect peoples' quality of life and amenity from the adverse effects of waste management development and transportation, including any cumulative effects in conjunction with other development. Policy W18 requires development proposals to demonstrate that the listed 7no. adverse impacts will be strictly controlled to avoid any significant nuisance being caused to dwellings and other sensitive properties close to the site or its transportation routes; these impacts include noise and vibration, including effects on areas of tranquillity, dust and other reduction in air quality and odour.

South Hams District Council

2.16. South Hams District Council's Development Plan is made up of a number of documents, known as the Adopted Plans, which contain policies to manage development in the District. These plans currently include the Core Strategy (adopted December 2006) and Development Policies Development Plan Document (adopted July 2010), relevant policies of which are summarised in the table below.

2.17. The new Local Plan will form part of 'Our Plan', a wider overarching strategic plan for the whole district to 2031, and is currently under development. It will identify broad locations and sites for development and set out planning policies to manage future growth in the district. Consultation on the next plan document, which will include draft policies and sites, was programmed for July 2016 and will provide a Joint Local Plan for South Hams District Council, West Devon Borough Council and Plymouth City Council.

Table 2-1 South Hams District Council Relevant Planning Policies

Adopted Plan	Policy Ref	Policy Details
Core Strategy	**SO22 LDF**	Achieve development which is of a high quality, respects its location and is compatible with the sustainable management of land, soil, air and water.
Development Policies Development Plan Document	**DP3**	**Residential Amenity** 1. Development will be permitted provided it does not have an unacceptable impact on the living conditions of occupiers of nearby properties. 2. Unacceptable impacts will be judged against the level of amenity generally accepted within the locality and could result from [*5 listed elements, including*]: e. odours or fumes;
	DP4	**Sustainable Construction** 5. Development should avoid or mitigate any harm to water, land or air from noise, fumes, dust, vibrations, light or heat.

Air Quality Criteria

National Objectives

2.18. The Air Quality (Standards) Regulations 2010 SI No.1001, which came into effect on 11th June 2010, set ambient air quality standards in England and transcribe into UK legislation two European Directives, namely 2008/50/EC[4] and 2004/107/EC[5]. These Regulations include limit values for a number of contaminants and are legally binding. The regulations aim to avoid, prevent or reduce harmful effects on both human health and the environment. Air Quality Objective Levels and the dates by which these shall be achieved are detailed within The Air Quality (England) Regulations 2000.

2.19. Local Authorities (LA) have a duty under Part IV of the Environment Act 1995[6] to review and assess air quality within their geographical boundary in relation to meeting the national air quality standards and objectives, which have been prescribed in the Air Quality Regulations, within the relevant period. Where it is found that these are unlikely to be met by the prescribed achievement date, the LA is required to designate Local Air Quality Management Areas (LAQM) and draw up Air Quality Action Plans setting out proposals to address the problem.

2.20. The air quality objective relevant to dust included in the regulations for LAQM is that for particulate matter (PM_{10}), as summarised in Table 2-2 below. The maximum limit values of Nitrogen Dioxide (NO_2) for the protection of human health and the dates by which these shall be achieved are listed in Table 2-3 below. The limit values for both PM_{10} and NO_2 currently remain the same in the Air Quality Standards (Amendment) Regulations 2016 which came into force on 31st December 2016.

Table 2-2 Summary of Objectives of National Air Quality Strategy applicable to England for PM_{10}

Pollutant	Limit Value	Measured as	To be achieved by
Particulate Matter (PM_{10})	50 µg/m^3 not to be exceeded more than 35 times per year	24 Hour Mean	1st January 2005
	40 µg/m^3	Annual Mean	1st January 2005
Notes: µg/m^3 - micrograms per cubic metre			

Table 2-3 Limit Concentration for Nitrogen Dioxide (NO_2) in Ambient Air

NO_2 Concentration Limit		Date to be Achieved as Set in Regulations		
Averaging Period	**Limit Value**	**Regulations**		**Date by which Limit Value is to be Met and Maintained Thereafter**
One hour mean	200 µg m^{-3}, not to be exceeded more than 18 times a calendar year	European Directive 2008/50/EC,	Annex XI, Section B	01/01/2010
		The Air Quality Strategy for England Scotland, Wales and Northern Ireland (2007)	Volume 1, Table 2	National 31/12/2005 European 01/01/2010
Calendar Year	40µg m^{-3}	Air Quality (England) Regs 2000	Schedule Page 3	31/12/2005
		Air Quality (Standards) Regs 2010	Schedule 2	*Not specified*
Notes: µg/m^3 - micrograms per cubic metre.				

[4] European Union (E) Directive 2008/50/EC on ambient air quality and cleaner air for Europe, 21st May 2008.
[5] EU Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel & polycyclic aromatic hydrocarbons in ambient air, 15/12/04.
[6] Environment Act 1995, Part IV Air Quality, Item 82 (1-3).

Annoyance and Health Effects

2.21. There are two aspects to air quality criteria for assessing dust, namely annoyance effects and health effects. For the annoyance effects all sizes of particulate are considered, but for health effects the main focus is on particles less than 10 micro-metres in diameter. These particles are known as PM_{10} and are small enough to be captured by inhalation and are slow to deposit. Health effects have been addressed and controlled under the permitting process and are not considered further in this report.

Annoyance

2.22. Dust effects on people have previously been identified as arising from increases in depositions levels and airborne dust concentrations; dust deposition on windows, the outside of houses and on cars being the most frequently mentioned reasons for concern[7]. Smaller dust particles remain airborne for longer, dispersing widely and depositing more slowly over a wider area. Research reported in Annex 1 of the former Minerals Policy Statement 2 has shown that large dust particles (>30µm) will, principally, be deposited within 100m of sources, while intermediate sized particles (10-30 µm) are likely to travel up to 200–500m. Fine dusts (<10 µm), which make up a small proportion of dust emitted from most workings, can travel up to 1 km from the source, but have a very low deposition rate and are therefore unlikely to create any adverse amenity effect[8].

2.23. Dust particles are dispersed by their suspension and entrainment in an airflow. Dispersal is affected by the size of the particles emitted, and wind speed, as well as their shape and density. Concentrations of dust decrease rapidly on moving away from the source, due to dispersion and dilution. Modelling studies show that deposition rates decrease significantly (in an almost logarithmic manner) with increasing distance from the source.

2.24. However, there are no definitive British Standards or limits for ambient dust for assessing annoyance. Guidelines from the former National Coal Board for annoyance are summarised in the following table.

Table 2-4 Dust Deposition Guidelines Published by the National Coal Board

Dust Deposition Rate ($mg/m^2/day$)	Comment
< 100	Acceptable
100 – 500	Marginal
> 500	Complaints Likely

2.25. Similar guidelines have been published by the Stockholm Environment Institute of the University of York, based upon background data from the United Kingdom, and are given in the following table.

Table 2-5 Dust Deposition Guidelines Published by the Stockholm Environment Institute

Location	$mg/m^2/day$	
	Complaints Possible	Complaints Likely
Open Country	100	140
Residential Areas	150	200
Town Centres	200	260

[7] Office of the Deputy Prime Minister, March 2005, Minerals Policy Statement 2: Controlling and Mitigating The Environmental Effects of Minerals Extraction in England, Annex 1: Dust, Paragraph 1.10.

[8] Office of the Deputy Prime Minister, March 2005, Minerals Policy Statement 2: Controlling and Mitigating The Environmental Effects of Minerals Extraction in England, Annex 1: Dust, Appendix 1A: Information on the Nature of Dust, Paragraph 1A.5.

2.26. Annoyance dust deposits are normally monitored by collecting a sample over a period of about one month to ensure that sufficient material is collected for an accurate determination. The weight of material collected is averaged over the sampling period and expressed as the average daily dust deposition rate.

2.27. A range of possible dust deposition rates and their associated effects has also been published by the Irish Institute for Industrial Research and Standards (1981), as summarised in the next table.

Table 2-6 Dust Deposition Guidelines Published by the Irish IIRS

Annual Average Dustfall ($mg/m^2/day$)	Effect	
< 30	Typical of rural areas	*No problems*
30 - 50	Typical small towns and suburban areas	*No problems*
80 - 130	Typical of town centres and industrial areas	*No problems*
130 - 200	Particularly during prolonged dry spells	*Occasional complaints*
>200		*Probable nuisance*

2.28. However, it must be stressed that annoyance often occurs from short-term high deposition rates. These can be associated with particular weather conditions or transient activities; hence an average deposition rate is only an indicator of the likelihood of annoyance. The rate of deposition may vary widely with emissions, variations in wind speed and direction, and also variations in the background dust concentration. Background levels will determine the reaction of local people to additional dust from specific sources, together with the following factors:

- The frequency of dust deposition incidents – a community may be prepared to tolerate an incident once a month, but not repeated incidents at frequencies of once or twice a week.
- The area affected by deposition – the larger the emissions, the larger the area affected and thus the greater probability of a complaint.

IAQM Guidance re Assessing Demolition and Construction Dust

2.35. The Institute of Air Quality Management's (IAQM) '*Guidance on the Assessment of Dust from Demolition and Construction*'[10] is designed to provide guidance for developers, their consultants and environmental health practitioners on how to undertake a construction impact assessment (including demolition and earthworks as appropriate).

2.36. This guidance states that the potential impacts are dependent on the mitigation measures adopted. As such, the emphasis in this document is on classifying the risk of dust impacts from a site, which will then allow mitigation measures commensurate with that risk to be identified.

2.37. The underlying Source-Pathway-Receptor concept used in the IAQM construction dust method is applicable to a wide range of applications, including minerals developments; however, the detailed guidance in this document (particularly on source strength and pathway distances) is specifically designed for construction and demolition and cannot be used, without appropriate modification, for other activities. However, some aspects of this guidance, such as the assessment of dust from earthworks and track-out, may be applicable with only minor adjustments. It is the intention of the IAQM to produce separate guidance on the assessment of the impact of mineral and waste sites at a future date.

2.38. The operational phases of minerals (and some waste) sites share some common features with construction activities; however, minerals sites can be of a significantly larger scale.

2.39. The IAQM guidance provides a framework for the assessment of risk and is used to define appropriate mitigation. The assessment procedure is summarised in the table below.

2.40. Activities on construction sites have been divided into four types to reflect their different potential impacts, namely: demolition, earthworks, construction and trackout.

2.41. The potential for dust emissions is assessed for each activity that is likely to take place. Obviously, if an activity is not taking place, e.g. demolition, then it does not need to be assessed. The assessment methodology considers three separate dust impacts, as follows, with account being taken of the sensitivity of the area that may experience these effects:

- annoyance due to dust soiling;
- the risk of health effects due to an increase in exposure to PM_{10}; and
- harm to ecological receptors.

[10] Institute of Air Quality Management's '*Guidance on the Assessment of Dust from Demolition and Construction*', V1.1, 01/06/2016 http://www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf.

Table 2-7 IAQM Construction Dust Assessment Procedure Summary

Step	Description
Step 1	Screen the requirement for a more detailed assessment. No further assessment is required if there are no receptors within a certain distance of the works.
Step 2	Assess the risk of dust impacts. This is done separately for each of the four activities (demolition; earthworks; construction; and trackout) and takes account of: • STEP 2A: the scale and nature of the works, which determines the potential dust emission magnitude.; and • STEP 2B: the sensitivity of the area. • These factors are combined in STEP 2C to give the risk of dust impacts. Risks are described in terms of there being a low, medium or high risk of dust impacts for each of the four separate potential activities. Where there are low, medium or high risks of an impact, then site-specific mitigation will be required, proportionate to the level of risk. Based on the threshold criteria and professional judgement one or more of the groups of activities may be assigned a 'negligible' risk. Such cases could arise, for example, because the scale is very small and there are no receptors near to the activity.
Step 3	Determine the site-specific mitigation for each of the four potential activities in STEP 2. This will be based on the risk of dust impacts identified in STEP 2. Where a local authority has issued guidance on measures to be adopted at demolition / construction sites, these should also be taken into account.
Step 4	Examine the residual effects and to determine whether or not these are significant.
Step 5	Prepare the dust assessment report.

Assessment Terminology

2.42. The approach taken to determine the potential significance of air quality and dust impacts from the proposed scheme follows the principles and terminology set out in DMRB, Volume 11, Section 2, Part 5 HA 205/08 (2008)[11], as summarised in the following two tables. The potential dust impact has also been described using terminology provided within the IAQM's '*Guidance on the Assessment of Dust from Demolition and Construction*'[12].

[11] Design Manual for Roads and Bridges, Volume 11 Environmental Assessment, Section 2 Environmental Impact Assessment, Part 5, HA 205/08 Assessment and Management of Environmental Effects, August 2008. http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/index.htm

[12] Institute of Air Quality Management's '*Guidance on the Assessment of Dust from Demolition and Construction*', V1.1, 01/06/2016 http://www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf.

Table 2-8 Magnitude of Impact and Typical Descriptors

Magnitude of Impact	Criteria Descriptors	
Major	**Adverse:**	Loss of resource and / or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial:	Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality.
Moderate	**Adverse:**	Loss of resource, but not adversely affecting the integrity; partial loss of / damage to key characteristics, features or elements.
	Beneficial:	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Minor	**Adverse:**	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial:	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	**Adverse:**	Very minor loss or detrimental alteration to one or more characteristics, features or elements.
	Beneficial:	Very minor benefit to or positive addition of one or more characteristics, features or elements.
No Change	No loss or alteration of characteristics, features or elements; no observable impact in either direction.	
Source:	Design Manual for Roads and Bridges, Volume 11 Environmental Assessment, Section 2 Environmental Impact Assessment, Part 5 HA 205/08 Assessment and Management of Environmental Effects, August 2008, Table 2.2.	

Table 2-9 Significance of Effects

Significance Category	Descriptors of Effect
Very Large	Only adverse effects are normally assigned this level of significance. They represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category.
Large	These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process.
Moderate	These beneficial or adverse effects may be important, but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a particular resource or receptor.
Slight	These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the project.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.
Source:	Design Manual for Roads and Bridges, Volume 11 Environmental Assessment, Section 2 Environmental Impact Assessment, Part 5 HA 205/08 Assessment and Management of Environmental Effects, August 2008, Table 2.3.

3. Potential Sensitive Receptors

Potential Sensitive Receptors

3.1. The main receptors potentially sensitive to air quality and dust impacts associated with the proposed development during both the construction and operational phases are nearby residential, commercial, educational and community properties, and areas utilised by humans and flora & fauna, examples of which are summarised below.

3.2. Appendices A.1 and A.4 indicate that the intervening ground between the proposed site and example Potential Sensitive Receptors (PSRs) is predominantly farmland and established hedgerows. Properties to the south of the proposed site also have intervening woodland.

3.3. Dust deposition is greatly affected by prevailing winds and as such windroses indicating the prevalent wind direction are provided in Appendix B.1.

PSR: Residential Properties

3.4. The main areas of residential properties within the vicinity of the proposed development are located at Smithaleigh (W), Lee Mill (NNE), Ivybridge (NE) and Yealmpton (SW), with intervening sporadic rural residential properties.

PSR: Commercial Properties

3.5. The closest commercial premises to the proposed site are the 2no. existing waste facilities operated by SITA UK Ltd and Wood Yew Waste at Lower Challonsleigh Farm itself, the Strashleigh Hams Inert Processing and Recycling Facility, and businesses at Smithaleigh (e.g. garage, offices, hotel and caravan and camping site).

3.6. Other nearby commercial premises are present at Collaford Farm (W), Langage Business Park (NW), Endsleigh Garden Centre (E), Lee Mill (NNE) and Ivybridge (NE).

PSR: Educational and Community Facilities

3.7. Lee Mill Pre School is located on Plymouth Road, to the north of the A38, approximately 175m NE of the north-eastern corner of the proposed Landfill Site and over c. 550m from the proposed WTS.

3.8. Ivybridge Community College and Stowford Primary School are located over approximately 4km to the north-east of the proposed site, again to the north of the A38 Devon Expressway.

3.9. Neighbouring community facilities include places of worship, medical facilities and community buildings within Lee Mill and Ivybridge.

PSR: Recreational Facilities

3.10. Existing recreational facilities within the vicinity of the proposed development include various footpaths and National Cycle Route 2; a hotel and caravan & camping site at Smithaleigh; allotments at Lee Mill; and parkland and outdoor sports facilities in Ivybridge.

PSR: Ecological

3.11. Both flora and fauna can potentially be sensitive to air quality and the deposition of dust and it should be considered that there may be the potential for the presence of European Protected Species (EPS) within the study area for the proposed development.

3.12. As noted in DCC's Screening Opinion (Page 6) the only designation covering the site itself is a Site of Special Scientific Interest (SSSI) Impact Risk Zone, however there are a number of sensitive designations located approximately 5km or less from the application site, including the following:

- The South Devon Area of Outstanding Natural Beauty (AONB) covers 337 square kilometers of coastline, estuaries and countryside stretching from Berry Head, Brixham in the east to Jennycliff, Plymouth in the west, and at its closest is approximately 3km south of Dorton Group's proposed site.
- There are several SSSI within the general area, but all are located over 4.5km from the proposed site. The closest are the Erme Estuary SSSI (c. 4.5km SE of the site) and the Yealm Estuary SSSI (c. 5km SW of the site). The Yealm Estuary is also a County Wildlife Site and a Strategic Nature Area (SNA No. 1127, allocated for mudflats)[13] and forms part of the Plymouth Sound and Estuaries Special Area of Conservation (SAC). The watercourse that flows between the two halves of the proposed landfill feeds into the Yealm Estuary.
- South Dartmoor SSSI and the Dartmoor SAC are located to the north-east of the proposed site, and may be predominantly upwind of the proposed site since available local windroses indicate the local prevailing wind direction to be from the south-west (see Appendix B.1). However, it should be noted that these designated sites are approximately over 6 km from the proposed site.
- The windroses also indicate a prevalence of wind from the east, as such Billacombe SSSI will be downwind of the proposed site on occasion. However, this SSSI is located approximately over 7.5 km from the proposed site. Billacombe is designated as a SSSI since it supports a population of the nationally rare field eryngo plant, *Eryngium campestre*, which is specially protected under the provisions of the Wildlife and Countryside Act 1981.
- Mackarell Parks, Southwood Woods & Strashleigh Hams County Wildlife Site (CWS) and New England Fields CWS are located within close proximity to the proposed site, to the SE and SW respectively.
- There are several areas of woodland in the area in all directions around the proposed site, as shown in Appendix A.1. Of particular note are the Ancient Woodland at Southwood Woods & Strashleigh Hams and the woodland around the Yealm Estuary, to the south-west of the proposed site, which is covered by SNA No.379.
- It should also be noted that Dartmoor National Park and Dartmoor Zoo are located approximately 3km to the north-east and north-west of the proposed development respectively.

3.13. DCC's Screening Opinion (Page 6) stated that '*due to this large number of 'sensitive areas' (defined by the EIA Regulations 2017) within close proximity to the site, and particularly the presence of a watercourse so close to the site that feeds in to the Yealm Estuary, it is considered that this is an environmentally sensitive location*'.

3.14. The Project Ecologist stated that notable ecological receptors most likely to be potentially adversely affected by dust are the Habitats of Principal Importance (lowland mixed deciduous woodland, hedgerows and River Yealm) within or bordering the Project.

[13] Strategic Nature Areas are not designated areas; however, they are areas of Devon's countryside which contain higher than average concentrations of existing wildlife habitat, http://www.dbrc.org.uk/strategic-nature-areas-snas/.

Potential Sensitive Receptors: Impact Assessment

3.15. As stated above, concentrations of dust decrease rapidly with increased distance away from the source, due to dispersion and dilution; as such the PSRs that are likely to experience the greatest dust impacts will be those closest to the site.

3.16. As such, the representative closest example ecological and residential PSRs are listed in the tables below, together with details regarding the approximate distance and direction of the PSR from the proposed development. The locations of these example representative ecological and residential PSRs are shown in Appendix A.4.

Table 3-1 Example Representative Potential Sensitive Receptors - Ecological

Potential Ecological Receptor Site		Receptor to Proposed Site (nearest)		Comment
Location	Designation	Direction from Site	Approx. $ Distance m	
Mackarell Parks Wood	Ancient Woodlands & Semi Natural Woodlands	SW	100 – 150	Extensive woodland bordering site
Challonsleigh Plantation (South Wood)	Ancient Woodlands & Semi Natural Woodlands	SE	100 – 150	Extensive woodland bordering site
Mackarell Parks Wood	County Wildlife Site	SW	100 – 150	
South Wood	County Wildlife Site	SW	100 – 150	
New England Quarry	County Wildlife Site	S	300	Marsh areas

Notes: $ Distances have been obtained from GoogleEarth and are approximate - used as a guide only.

Table 3-2 Example Representative Potential Sensitive Receptors - Residential

Potential Sensitive Receptor			Receptor to Proposed Site		Intervening Topography
Report Ref	Property	No. ^ Storeys	Direction from Site	Approx. Distance m $	
01	**Lower Challonsleigh Farm** Smithaleigh	2	NW W	WTS: 383 - 615 LS: 91 - 595	Soft: rough grassland and hedgerows Hard: Access Tracks and Yards
02	**Holmleigh** Smithaleigh / Lee Mill	2	NNW-NW WNW	WTS: 525 - 742 LS: 111 – 710	Soft: vegetation, farmland, hedgerows, and rough grassland Hard: A38, Access Tracks and Yards
03	**Hazeldene Close (Plymouth Rd)** Lee Mill	2	N – NNE N - NNE	WTS: 500 - 686 LS: 110 - 525	Soft: trees, hedgerows, farmland, and rough grassland Hard: Plymouth Road, Car Park in Lee Mill, A38 & landfill
04	**Strashleigh**	2	E - ENE ESE - E	WTS: 1089-1394 LS: 1023-1610	Soft: rough grassland, farmland, hedgerows and trees Hard: farm access track & yards, and former recycling facility
05	**Swainstone**		ESE ESE – SE	WTS: 973-1253 LS: 985-1590	Soft: rough grassland, farmland, trees, hedgerows & woods Hard: farm access tracks and yards
06	**Brook Farm**	2	ESE ESE – SE	WTS: 1186-1465 LS: 1194-1801	Soft: farmland, rough grassland, trees, hedgerows & woods Hard: farm access tracks and yards
07	**Fursdon Farm**	2	ESE ESE – SE	WTS: 1707-1979 LS: 1722-2328	Soft: farmland, trees, hedgerows, woods & rough grassland Hard: farm access track / lane
08	**Coyton Barton**	2	SE SE	WTS: 1618-1862 LS: 1653-2523	Soft: farmland, hedgerows, trees, woods & rough grassland Hard: farm access tracks and yards, Devon Lane
09	**The Piggery and Three Corner Plantation**	1	SSW - S SSW - S	WTS: 728 - 945 LS: 843 - 1280	Soft: farmland, hedgerows, rough grassland & woods Hard: gravel area at New England Quarry
10	**Choakford Farmhouse** Choakford Corner	2	WSW - SW SW	WTS: 881-1145 LS: 952-1351	Soft: trees, rough grassland, hedgerows & farmland Hard: Yards, Devon Lanes, Access Tracks, Langage Choakford Corner
11	**Barn Park Farm**	2	WSW - W WSW	WTS: 1135-1438 LS: 1167-1548	Soft: hedgerows, farmland and trees Hard: Devon Lanes and Access Track
12	**Collaford Farm**	2	W WSW	WTS: 1285-1588 LS: 1195-1690	Soft: hedgerows, farmland and trees Hard: Yards, Devon Lanes and Access Track
13	**Beacon View** Smithaleigh	2	WNW - W WSW - W	WTS: 656 - 961 LS: 555 - 1041	Soft: hedgerows, farmland and trees Hard: to WTS n/a; to LS Access Tracks and Yards
14	**Smithaleigh Caravan & Camping** Smithaleigh	1	WNW - W W	WTS: 663 - 954 LS: 446 - 995	Soft: hedgerows, farmland, trees and rough grassland Hard: to WTS – Devon Lane; to LS – DL, yards & access road
15	**The Smithaleigh Hotel** Smithaleigh	2 / 3	WNW-NW WNW - W	WTS: 678 - 960 LS: 414 - 983	Soft: hedgerows, farmland, rough grassland and trees Hard: Devon Lane & Access Tracks, LS also Yards
16	**Pretoria Cottages** Smithaleigh	2	WNW-NW WNW - W	WTS: 607 - 872 LS: 297 - 877	Soft: hedgerows, farmland, rough grassland and trees Hard: Smithaleigh Village Road, Yards, Access Tracks
17	**Wheal Rose** Smithaleigh	S 2 E 1	WNW-NW WNW - W	WTS: 501 - 760 LS: 188- 765	Soft: rough grassland, hedgerows, trees and farmland Hard: Access Tracks and Yards
18	**Buttsford House** Lee Mill	2	NNE NNE - NE	WTS: 541 - 733 LS: 182 - 608	Soft: rough grassland, hedgerows and trees Hard: A38 Devon Expressway
19 + 20	**No.s 1-5 Buttsford Terrace (w)** Lee Mill	2	NNE NNE - NE	WTS: 561 - 757 LS: 207 - 635	Soft: rough grassland, hedgerows and trees Hard: A38 Devon Expressway

Notes: $ Distances have been obtained from GoogleEarth and are approximate - used as a guide only. WTS = proposed Waste Transfer Station and Compound
LS = proposed Landfill Site

4. Existing & Proposed Climate: Air Quality and Dust

Existing Climate: Local Air Quality

4.1. The existing air quality in the local area is primarily influenced by traffic on the A38 Devon Expressway, with additional potential existing sources including other local traffic, farming activities, and existing operations in the vicinity of the proposed site, including the three current waste facilities at Challonsleigh Farm and at the Strashleigh Hams Inert Processing and Recycling Facility. However, existing levels of nitrogen dioxide (NO_2) and particulate matter (PM_{10}) values are well below the EU limit and National Air Quality Strategy annual mean objectives of 40µg/m^3 per calendar year.

4.2. The quality of air in the South Hams is generally very good, but Air Quality Management Areas based on annual average Nitrogen Dioxide (NO_2) concentrations have been declared in parts of Ivybridge and Totnes, close to some busy roads.

4.3. South Hams District Council (SHDC) has a programme of NO_2 monitoring which has focused on five key geographical areas and PM_{10} monitoring at 2 of these, the closest of which to the proposed development are in the vicinity of Langage Power Station (c.2.5 km NW of the proposed site) and the B3213 Western Road in Ivybridge (c. 3.5km ENE of the proposed site), the latter being declared an Air Quality Management Area (AQMA) by SHDC under the Local Air Quality Management Process.

Western Road, Ivybridge (AQMA)

4.4. SHDC's Air Quality Progress Report 2013 stated that the annual mean objective level for NO_2 continued to be exceeded at Western Road in 2012, so the AQMA needed to be retained. In 2013 results at the monitoring tubes located in the Ivybridge AQMA showed one exceedance, that being at the tube located in the middle of the terrace of houses fronting Western Road, which are the key focus of this AQMA. The trends for selected tube locations here also showed roughly constant concentrations for the last few years until 2013, when there was a slight decrease.

Langage Power Station

4.5. Langage Power Station has been in operation since early 2010 and the automatic analyser situated at Sparkwell Village Hall car park, c. 1.5km to the north-east of the power station, recorded 3 exceedances of the 24 hour mean guidance level for Particulate Matter PM_{10}, i.e. 50 µg/m^3, in 2009, and the annual average level recorded there was 18.7 µg/m^3; however, in 2012 and 2013 there were no exceedances of either the annual or the 24 hour mean PM_{10} objectives.

4.6. The Nitrogen Dioxide annual average levels measured at Sparkwell Village Hall in 2012 were low; the automatic analyser measured an annual average of 6.3 µg/m^3 and no exceedances of the hourly mean. Nitrogen Dioxide levels recorded by diffusion tubes at various locations around the Power Station were all very similar to background levels that would be expected there without the Power Station.

4.7. Air Quality monitoring at Sparkwell was discontinued during 2013 since the recordings had been completed for the time period previously agreed with the developers, which was for 1 year before the power station commenced operating and 4 years afterwards, and levels were below guidelines.

Proposed Site: Lower Challonsleigh Farm

4.8. The proposed site at Lower Challonsleigh Farm is not located within an AQMA.

4.9. No historic or existing air quality or dust data is available for the proposed site itself.

Existing Climate: Dust

4.10. Current activities at the three existing waste facilities at Lower Challonsleigh Farm and at the neighbouring Strashleigh Hams Inert Processing and Recycling Facility will contribute some dust to the immediate vicinity, but not at any observed levels that are cause for concern.

4.11. Stone crushing and sorting already takes place on the proposed WTS site, with no known complaints regarding dust.

Proposed Climate: Local Air Quality

Future Background Air Quality

4.12. Estimated future Background Air Pollution Maps and air quality data, based on a reference year of 2011, are available via the Local Air Quality Management Archive[14], which provides predictions of total annual mean concentrations based on 1 km x 1 km grid squares. This data is provided to assist Local Authorities with the review and assessment of local air quality. Example background values for the twelve closest grid squares around the proposed site are summarised in the table below.

4.13. The predicted NO_2 and PM_{10} values summarised in Table 4-2 below are higher closest to the A38 and decrease with distance away from this road. However, all the NO_2 and PM_{10} values are well below the EU limit and National Air Quality Strategy annual mean objectives of 40µg/m^3 per calendar year. This indicates that the activities at the proposed site are not envisaged to have a distinct air quality impact in the future and air quality is predicted to remain well below the objectives.

Off-site Traffic

4.14. Predictions of possible local air quality impacts associated with the off-site road traffic have been determined in accordance with DMRB 11.3.1, based on the latest available traffic flows to establish whether further study is required, or if the change in associated air quality can be deemed not significant.

4.15. The information available from the project's Traffic Engineer at the time of writing is summarised in Table 4-1 below. Traffic flows are presented as 24-hour Annual Average Daily Traffic (AADT) flows, as required by DMRB 11.3.1. The 'With Development' traffic data includes traffic from the scheme proposed by Dorton Group, and also Wood Yew Waste Ltd's recycling facility proposed at the field to the south of their existing operations at Lower Challonsleigh Farm.

Table 4-1 Off-site Local Traffic Without and With Developments (24-hr AADT)

Road Link			Without Development			WITH Developments		
Section	Surface	Speed mph	24-hr AADT		% HGV	24-hr AADT		% HGV
			All	HGV		All	HGV	
Slip Road	Impervious	30	1,180	138	12	1,303	233	18
Smithaleigh Road	Impervious	30	1,216	138	11	1,339	233	17

14 http://uk-air.defra.gov.uk/data/laqm-background-home. http://uk-air.defra.gov.uk/data/laqm-background-maps?

Proposed Climate: Dust

Landfill Site

4.16. The main potential source of dust generated by the proposed scheme will be the landfill operation, including from the external movement and un/loading of delivery vehicles, and also dust generated by the placement, spreading and compaction of waste by tipping, dozing and blading. Potential wind erosion may occur until the final surface of each Landfill Phase is restored with vegetation.

Waste Transfer Station

4.17. The main potential sources of dust generated from the Waste Transfer Station's external compound will be the external movement and un/loading of vehicles and the tipping of skip-lorries, and also dust from the sorting of materials, the existing stone crusher and powered screen and associated loading shovels.

4.18. Activities within the main WTS Building itself will include the processing, storage and distribution of recyclable materials. This operational dust will be mitigated in part by the building's roof and walls, although the structure will have vehicular access doors on both the western and eastern facades.

Table 4-2 Predicted Local Future Background Air Quality Data (NO_2 µg/m^3 and PM_{10} µg/m^3) Base Year 2011

Easting	Northing	Position Relative to Site	Typical Landuse Description					Predicted Future Background (Base Year 2011) NO_2 µg/m^3						Predicted Future Background (Base Year 2011) PM_{10} µg/m^3					
			General Landscape	Water	Woodland	Roads	Route 2	2011	2016	2020	2025	2030	LA	2011	2016	2020	2025	2030	LA
257,500	55,500	Far NW	E side of Power Station Site Solar Farms Farmland + sporadic properties	Silverbridge Lake Tributary	✓	A38 ✓	-	12.80	10.78	8.87	8.21	8.14	SHDC	15.84	14.99	14.56	14.25	14.35	SHDC
258,500	55,500	NW	Farmland + sporadic properties	-	-	A38 ✓	●	11.59	9.70	7.98	7.35	7.27	SHDC	15.36	14.55	14.15	13.84	13.92	SHDC
259,500	55,500	N	Farmland + sporadic properties Lee Mill	River Yealm	✓	A38 ✓	●	11.26	9.38	7.81	7.21	7.12	SHDC	15.39	14.60	14.21	13.90	13.98	SHDC
260,500	55,500	NE	Farmland + sporadic properties Lee Mill Industrial Estate Lee Mill Hospital and Allotments	River Yealm Tributary	-	A38 ✓	●	12.11	9.92	8.48	7.97	7.93	SHDC	15.83	14.92	14.48	14.19	14.23	SHDC
257,500	54,500	Far W	Farmland + sporadic properties	Silverbridge Lake Tributaries	✓	A38 ✓	●	7.88	6.94	5.97	5.68	5.70	SHDC	14.96	14.28	13.93	13.61	13.67	SHDC
258,500	54,500	W and **NW Corner of Site**	Smithaleigh Lower Challonsleigh Farm SITA UK LTD and WYW Langage Choakford Corner Farmland + sporadic properties	Silverbridge Lake Tributaries River Yealm Tributary	✓	A38 ✓	●	**7.45**	**6.54**	**5.64**	**5.36**	**5.38**	**SHDC**	**15.04**	**14.38**	**14.03**	**13.71**	**13.77**	**SHDC**
259,500	**54,500**	**SITE**	Dorton Group Recycling and Strashleigh Hams Inert Processing and Recycling Facility, Rural	River Yealm & Tributaries New England Quarry	✓✓	Property Accesses	-	**7.20**	**6.30**	**5.43**	**5.17**	**5.19**	**SHDC**	**14.13**	**13.47**	**13.13**	**12.80**	**12.85**	**SHDC**
260,500	54,500	E	Farmland + sporadic properties	River Yealm Tributaries	✓	✓	-	7.02	6.11	5.30	5.03	5.05	SHDC	14.12	13.46	13.11	12.79	12.84	SHDC
257,500	53,500	Far SW	Farmland + sporadic properties	Silverbridge Lake Tributary	✓	✓	-	6.93	6.16	5.36	5.12	5.14	SHDC	14.96	14.31	13.98	13.65	13.71	SHDC
258,500	53,500	SW	Farmland + sporadic properties	River Yealm Tributaries	✓	✓	-	6.65	5.90	5.14	4.91	4.93	SHDC	15.03	14.39	14.06	13.74	13.79	SHDC
259,500	53,500	S	Farmland + sporadic properties	River Yealm & Tributaries	✓✓	✓	-	6.55	5.78	5.02	4.78	4.79	SHDC	13.93	13.30	12.96	12.64	12.69	SHDC
260,500	53,500	SE	Farmland + sporadic properties	River Yealm Tributaries	✓	✓	-	6.35	5.58	4.84	4.60	4.61	SHDC	13.56	12.92	12.58	12.26	12.31	SHDC

Notes: Coordinate for approximate centre of the proposed development: SX 595,552 (Easting 25959279, Northing 05520475).
Local Authority (LA): South Hams District Council (SHDC).
Roads: A38; ✓Local Roads & Property Accesses; Property Accesses Only.
National Cycle Route 2 ● .

Sources: www.streetmap.co.uk and http://uk-air.defra.gov.uk/data/laqm-background-maps?

5. Potential Impact Assessment - Operational Phases: Air Quality & Dust

Potential Operational Phase Impact: Air Quality

Off-Site Traffic

5.1. The following table identifies that further assessment of the possible local air quality impacts associated with the latest available off-site road traffic flows of the combined operational traffic from both the Dorton Group and WYW proposals at Lower Challonsleigh Farm is not required since in accordance with DMRB 11.3.1 the increases in combined daily traffic flows are below 1,000 AADT and the changes in HGVs are less than 200 AADT. In accordance with DMRB 11.2.5 terminology, the potential impact on air quality from the off-site operational traffic is qualitatively assessed as being of **negligible adverse magnitude**, with a **slight significance** without mitigation.

Table 5-1 Scoping re Local Air Quality from Off-site Traffic

Local Road Link	Combined Traffic AADT				HGV AADT			
	Without	WITH $	Change	Assess if > 1,000	Without	WITH $	Change	Assess if > 200
Slip Road	1,180	1,303	123	n/a	138	233	95	n/a
Smithaleigh Road	1,216	1,339	123	n/a	138	233	95	n/a

Notes: $ The 'With Developments' traffic data includes traffic from the scheme proposed by Dorton Group, and also Wood Yew Waste Ltd's recycling facility proposed at the field to the south of their existing operations at Lower Challonsleigh Farm.

Site Activities and Access Road Traffic

5.2. The future background NO_2 values identified in Table 4-2 above are well below the EU limit and National Air Quality Strategy annual mean objectives of 40µg/m^3 per calendar year. This indicates that the activities and site traffic at the proposed development are not envisaged to have a distinct air quality impact in the future and air quality is predicted to remain well below the objectives. As such, in accordance with DMRB 11.2.5 terminology, the potential impact on NO_2 air quality from the operational site activities is considered be of **negligible adverse magnitude**, with a **slight significance** without mitigation.

Potential Operational Phase Impact: Dust

Method of Assessment

5.3. A qualitative appraisal has been undertaken to assess the potential significance of the possible dust impact of the proposed scheme once operational on the closest Potentially Sensitive Receptors, the results of which are summarised in this section below.

5.4. Initially both the Waste Transfer Station and the Landfill Site will be operational, with the associated traffic utilising the site's access road; after the landfill has been completed the scheme will then include the activities and traffic associated with the proposed Waste Transfer Station only.

5.5. As noted in Section 4 above, the main potential source of dust from the proposed scheme will be the landfill operation.

Potential Dust Emissions: Landfill Operations

5.6. The USA EPA publication AP42 Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1[15] provides empirically derived formulae for estimating potential particulate emissions from a wide range of activities, including construction or recycling activities involving the screening and conveyance of aggregate, loading and unloading of lorries with soil or aggregate, vehicle movements on unpaved roads, and wind erosion.

5.7. However, for Dorton Group's proposed development such estimations would entail many assumptions regarding the waste materials, vehicles routes and frequency of movement and intensity of WTS and landfill activities, which will in reality vary daily. Therefore, it is considered that estimating the potential dust emissions with this associated uncertainty is not warranted, given also the fact that local air quality does not appear to be have been historically affected from the existing Dorton and Strashleigh operations.

5.8. Nevertheless it is clear that operations at the proposed Landfill Site have a potential to temporarily locally generate airborne dust, i.e. when not raining and if dust emissions are not abated, and as such an attempt at understanding the potential emission magnitude of the proposed development has been undertaken below, in line with the Institute of Air Quality Management's '*Guidance on the Assessment of Dust from Demolition and Construction*'.

5.9. As noted in Section 4 above, the main potential sources of dust generated by the proposed Landfill Site will be the external movement and un/loading of delivery vehicles, and also dust generated by the placement, spreading and compaction of waste by tipping, dozing and blading. Potential wind erosion may occur until the final surface of each Landfill Phase is restored with vegetation.

5.10. With reference to the earthworks sub-section of Step 2A of the IAQM Guidance[16], the potential dust emission magnitude from the proposed Landfill Site is classed as **Medium**. That class is for earthworks with total site area 2,500-10,000m^2, moderately dusty soil type, formation of bunds 4-8m, and total material moved 20,000-100,000 tonnes.

5.11. In accordance with the 'trackout' sub-section of Step 2A of the IAQM Guidance, dust emissions are assessed as **Medium**, i.e. 10-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay/silt content) and unpaved road length 50-100m.

[15] https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors.

[16] Institute of Air Quality Management's '*Guidance on the Assessment of Dust from Demolition and Construction*', V1.1, 01/06/2016 - Step 2A – Define the Potential Dust Emission Magnitude.

Potential Dust Emissions: Proposed WTS and Compound

5.12. As noted in Section 4 above, the main potential sources of dust generated from the Waste Transfer Station's external compound will be the external movement and un/loading of vehicles and the tipping of skip-lorries, and also dust from the sorting of materials, the existing stone crusher and powered screen and associated loading shovels.

5.13. Activities within the main WTS Building itself will include the processing, storage and distribution of recyclable materials. This operational dust will be mitigated in part by the building's roof and walls, although the structure will have vehicular access doors on both the western and eastern facades.

5.14. The generation of wind-blown particulate (fugitive dust), unlike other atmospheric pollutants, is particularly dependent upon weather conditions. The prevailing meteorological conditions at a site are dependent on a number of factors including location, macroclimatic and site specific micro-climatic. For fugitive dust dispersion the most significant meteorological factors are wind speed and direction, and the number of days of rainfall.

5.15. Dust can be dispersed by the wind, with smaller dust particles remaining airborne for longer, and potentially dispersing widely and depositing more slowly over a wide area. As previously indicated, general guidance suggests mineral dust >30 µm will largely be deposited within 100m of sources, with intermediate sized particles 10-30 µm deposited within 200-500m, and modelling studies show that deposition rates decrease significantly (in an almost logarithmic manner) with increasing distance from the source.

Potential Receptor Sensitivity

Residential and Commercial PSRs: Sensitivities of People

5.16. As indicated by Table 5-2 and Appendix A.4, there are several residential properties and commercial premises around the application site within the indicative distances detailed in Paragraph 5.15 above.

5.17. The proposed site and nearby properties are not within an urban area or surrounded by a high density of dwellings, but are surrounded by farmland with sporadic existing operations nearby. Therefore with reference to Step 2B (Box 6) of the Institute of Air Quality Management's (IAQM) '*Guidance on the Assessment of Dust from Demolition and Construction*'[17] the sensitivity of those receptors to dust soiling effects is assessed to be **Medium** based on the following qualitative descriptions:

- Medium Sensitivity Receptor (to dust deposition):
  - users would expect[18] to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or
  - the appearance, aesthetics or value of their property could be diminished by soiling; or
  - the people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land.

5.18. Similarly with reference to Step 2B (Box 7) of the IAQM Guidance the sensitivity of those receptors to the health effects of PM_{10}, is assessed as High based the following qualitative descriptions:

- High Sensitivity Receptor (to PM_{10}):
  - locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).

[17] IAQM '*Guidance on the Assessment of Dust from Demolition & Construction*', V1.1, 01/06/2016 - Step 2B – Define the Sensitivity of the Area.
[18] People's expectations will vary depending on the existing dust deposition in the area, see IAQM Guidance V1.1 - Section 4.2.

Ecological PSRs: Sensitivities of Ecology

5.19. With reference to Step 2B (Box 8) of the IAQM Guidance the sensitivity of habitats and ecology to dust soiling effects is assessed to be **Low** based on the following qualitative descriptions:

- Low Sensitivity Receptor (to dust deposition):
  - Locations with a local designation where the feature may be affected by dust deposition.

5.20. As indicated in Appendix A.4, the closest Ecological PSRs are at Mackarell Parks Wood, South Wood and Strashleigh Hams County Wildlife Site (CWS) and Ancient Woodland and New England Fields CWS, which are located within close proximity to the proposed site, to the SE and SW respectively.

5.21. These are all local designations and are greater than 50m away, and hence can be screened out of the IAQM Assessment (Step 1), although the Project Ecologist has commented on the potential residual dust impact of the proposals, as summarised at the end of this Section.

Operational Phases: Dust Risk Assessment

5.22. The risk of dust exposure depends upon a number of elements. These include the distance of the receptor from the proposals and the percentage time that the wind blows from the proposed site to the receptor, the hours of working and quantity of dust emissions and the meteorological dispersion characteristics, such as the atmospheric dispersion parameters which determine the concentration at the receptor.

Potential Dust Impact – Off-site Traffic: Without Mitigation

5.23. Given the low off-site traffic flows generated by the proposed scheme during the operational phase, the potential dust impact of the off-site works traffic is qualitatively assessed as being of **negligible adverse magnitude**, with a **slight significance** without mitigation.

Potential Dust Impact – WTS: Without Mitigation

5.24. Based on an analysis of the wind speed / direction data as provided in Appendix B.1[19], wind may blow from the proposed site operations to the potentially sensitive receptors for the times given in Table 5-2 below. Typically a receptor could be expected to be downwind of the site operations for less than 20% of the time, which if compounded by rain for 60% of the time[20] and assuming on average 8hrs a day would give a possible risk of exposure of only 0.32% of the time, on average.

5.25. The potential nearby dust sensitive receptors are in the main unlikely to be affected by dust >30 µm from the WTS operations, since the PSRs are located over 100m away from the proposed WTS Site.

5.26. As such the dust impact of the proposed operational WTS alone (including site traffic), without mitigation, may be of **minor adverse magnitude**, with a **moderate significance** for PSRs within 100m of the proposals. For PSRs located further away from the proposed site it is considered that the potential dust impact during this operational WTS without mitigation may be of **negligible adverse magnitude**, with a **slight significance**.

Potential Dust Impact – WTS and Landfill Site: Without Mitigation

5.27. The potential nearby dust sensitive receptors are in the main unlikely to be affected by dust >30 µm from the landfill operations, since the PSRs are predominantly located over 100m away from the proposed Landfill Site, the exceptions being some properties to the immediate north and west of the proposed Phase 1 when the landfill is being filled at its northern perimeter.

5.28. As such the dust impact of the proposed operational works during the combined phase of the WTS and Landfill Site (including site traffic), without mitigation, may also be of **minor adverse magnitude**, with a **moderate significance** for PSRs within 100m of the proposals. For PSRs located further

[19] Wind data specific to the Lower Challonsleigh Farm site is not available, instead reference has been made to wind rose data for Mountbatten in Plymouth, as provided in Appendix B.1, itself located approximately 10.5km south-west of the proposed site.

[20] An indication of the rainfall conditions potentially experienced at the proposed site has been estimated from rainfall records available for Ivybridge, the centre of which is located approximately 3.6 km to the north-east of the site. The 2000 to 2012 weather recordings for Ivybridge, as provided in Appendix B.2, indicate that on average Ivybridge experiences 228 days of rain in a year (62.5%). Hence, for over 60% of the time rain is likely to largely prevent fugitive dust dispersion from the proposed site.

away from the proposed site it is considered that the potential dust impact during this operational phase without mitigation may also be of **negligible adverse magnitude**, with a **slight significance**.

Operational Phases: Proposed Mitigation Measures

Traffic Management

5.29. It is proposed that the right turn at the centre of Lee Mill, that facilitates the A38 'U-turn' in the village, is made subject to a weight ban. There is no other convenient location within Lee Mill to make a 'U-turn' so that a large vehicle can turn left under the A38, so large vehicles would need to travel on to the Ivybridge junction in order to turn.

5.30. This will have limited impact at Ivybridge, and will avoid the scheme's off-site HGVs causing any associated air quality and dust impacts in Lee Mill which could otherwise potentially cause a significant impact due to the close proximity of residential properties to the main road through Lee Mill.

5.31. Potential air quality and dust impacts of operational related traffic through Smithaleigh will be mitigated by the application of good industry practice (e.g. routing; and use of appropriate and well-maintained vehicles).

Dust Control and Pollution Prevention Measures

5.32. The dust management measures identified in Table 5-3 below shall be undertaken during the operational phases of the proposed scheme and should be reviewed on a weekly basis.

5.33. This table includes the responsibilities of both management and staff and has been derived from information obtained from Dorton Group's existing operations, Atkins Ltd.'s knowledge of the proposed site and the anticipated weather conditions, together with publicly available guidance documents produced by other Local Authorities.

5.34. In addition, all site workers and contractors shall be required to attend site-specific briefings detailing the requirements to adopt 'best practice means' to minimise operational dust nuisance both on and off site; and a primary point of contact for regulatory authorities, other external bodies and the general public will be appointed.

5.35. It is proposed that the shared main access road will be tarmacked, and the WTS site itself will include a concrete finished apron in the main operating areas. Both of these surfaces will assist in minimising the generation of dust, as opposed to unsurfaced haul routes and yards; however, these surfaces must still be regularly dampened down and maintained as required in order to remain effective.

5.36. In accordance with the Project Ecologist's requirements all on-site water will not directly enter existing watercourses, and instead will enter the scheme's filtration systems / attenuation ponds, in order to not pollute the existing watercourses.

Operational Phases: Dust Monitoring

5.37. Twice daily visual monitoring will be used at the site boundary, or more frequently if conditions indicate this may be necessary. All observations will be recorded in the site diary.

5.38. If required, and following discussion with the Environment Agency (EA), further monitoring in the form of Frisbee Gauge dust monitoring can be performed as detailed in EA's Technical Guidance Note M17[21] at the site perimeter to determine the effectiveness of current dust control and management.

[21] Environment Agency, Technical Guidance Note M17 – Monitoring of Particulate Matter in Ambient Air around Waste Facilities.

Operational Phase: Residual Effects

Air Quality

5.39. The potential residual impact on air quality from the combined off-site operational traffic is qualitatively assessed as being of **negligible adverse magnitude** with a **neutral significance** with mitigation. In accordance with DMRB 11.3.1, further assessment of the possible local air quality impacts associated with the combined off-site road traffic flows from both the Dorton Group and WYW proposals at Lower Challonsleigh Farm is not required since the net increase in operational traffic is lower than the DMRB 11.3.1 screening threshold criteria.

5.40. The traffic management proposed in Lee Mill, described above, will avoid the scheme's off-site HGVs causing any associated air quality and dust impacts in Lee Mill, which could otherwise potentially cause a significant impact due to the close proximity of residential properties to the main road through Lee Mill. These vehicles would be re-routed and would instead need to make a 'U-turn' at the Ivybridge junction, this would add some vehicular traffic to the Ivybridge west junction; as such SHDC EHD requested that the potential effects of this increased traffic on the AQMA at Western Road, Ivybridge be considered. But at less than ten vehicle movements per hour, this is considered to not have a significant impact on air quality in Ivybridge and will not unduly affect the Western Road AQMA.

5.41. The potential residual impact on local NO_2 air quality from the operational site activities can be managed to a **magnitude of no change**, with a **neutral significance** for all of the assessed Potentially Sensitive Receptors.

Dust

5.42. With reference to the IAQM Guidance, the overall risk of dust impact from the landfill operations is assessed as Medium Risk based on a high receptor sensitivity and medium dust emission magnitude with respect to the nearest receptors to Phase 1, and Low elsewhere. The overall risk of dust impact from the WTS operations is considered to be Low Risk. Therefore the site will need to apply approved dust mitigation measures to minimise the potential for offsite dispersion and ensure that background local PM_{10} is not increased and complaints do not arise from deposited dust.

5.43. With the effective management and deployment of the identified mitigation and monitoring measures it is considered that the potential residual impact of operational dust from the proposed scheme during both the combined phase of the WTS and Landfill Site (including access road traffic) and the WTS alone (including access road traffic) can be managed to a **magnitude of no change**, with a **neutral significance** for all of the assessed Potentially Sensitive Receptors.

5.44. Given the low off-site traffic flows generated by the proposed Dorton Group and Wood Yew Waste schemes during the operational phases, and the appropriate management of such traffic, the potential residual impact of dust from the off-site operational works traffic is qualitatively assessed as being of **negligible adverse magnitude**, with a **slight significance** for the closest assessed PSRs and managed to a **magnitude of no change**, with a **neutral significance** for the further away PSRs.

5.45. The Project Ecologist has reviewed this report and stated that with the effective application of the operational stage dust control measures identified above, in combination with ecology-specific mitigation embedded within the design, there are **no significant adverse residual effects** foreseen on ecological receptors. The Project Ecologist also stated that with all on-site water not directly entering existing watercourses, and instead entering the scheme's filtration systems / attenuation ponds, the proposed scheme will have **no significant adverse residual effects** on ecology associated with the existing watercourses.

Table 5-2 Indicative Time that Potential Receptors may be Downwind of the Proposed Development

Potential Receptor		Receptor Position from Proposed Site		Indicative Time PSR Downwind of Site $	
Report Ref	Property Name	Approximate Distance (m)	Direction	% Time	No. Days / Year
01	Lower Challonsleigh Farm	WTS: 383 - 615 LS: 91 - 595	NW W	7 12	26 43
02	Holmleigh	WTS: 525 - 742 LS: 111 – 710	NNW - NW WNW	3 - 7 4	13 -26 13
03	Hazeldene Close	WTS: 500 - 686 LS: 110 - 525	N - NNE N - NNE	6 - 14 6 - 14	22 - 50 22 - 50
04	Strashleigh	WTS: 1089-1394 LS: 1023-1610	E - ENE ESE - E	11 - 13 9 - 11	39 - 48 31 - 39
05	Swainstone	WTS: 973-1253 LS: 985-1590	ESE ESE - SE	9 9 - 17	31 31 - 63
06	Brook Farm	WTS: 1186-1465 LS: 1194-1801	ESE ESE - SE	9 9 - 17	31 31 - 63
07	Fursdon Farm	WTS: 1707-1979 LS: 1722-2328	ESE ESE - SE	9 9 - 17	31 31 - 63
08	Coyton Barton	WTS: 1618-1862 LS: 1653-2523	SE SE	17 17	63 63
09	The Piggery / Three Corner Plantation	WTS: 728 - 945 LS: 843 - 1280	SSW - S SSW - S	5 - 7 5 - 7	17 - 25 17 - 25
10	Choakford Farmhouse	WTS: 881-1145 LS: 952-1351	WSW - SW SW	9 - 13 13	32 - 49 49
11	Barn Park Farm	WTS: 1135-1438 LS: 1167-1548	WSW - W WSW	9 - 12 9	32 - 43 32
12	Collaford Farm	WTS: 1285-1588 LS: 1195-1690	W WSW	12 9	43 32
13	Beacon View	WTS: 656 - 961 LS: 555 - 1041	WNW - W WSW - W	4 - 12 9 - 12	13 - 43 32 - 43
14	Smithaleigh Caravan & Camping Site	WTS: 663 - 954 LS: 446 - 995	WNW - W W	4 - 12 12	13 - 43 43
15	The Smithaleigh Hotel	WTS: 678 - 960 LS: 414 - 983	WNW-NW WNW - W	4 - 7 4 - 12	13 - 26 13 - 43
16	Pretoria Cottages	WTS: 607 - 872 LS: 297 - 877	WNW-NW WNW - W	4 - 7 4 - 12	13 - 26 13 - 43
17	Wheal Rose	WTS: 501 - 760 LS: 188- 765	WNW-NW WNW - W	4 - 7 4 - 12	13 - 26 13 - 43
18	Buttsford House	WTS: 541 - 733 LS: 182 - 608	NNE NNE - NE	14 14 - 27	50 50 - 98
19 + 20	No.s 1-5 Buttsford Terrace	WTS: 561 - 757 LS: 207 - 635	NNE NNE - NE	14 14 - 27	50 50 - 98
Notes:	$ Based on Mountbatten, Plymouth Wind Rose data (January 2001 – December 2010), see Appendix B.1.				

Table 5-3 Good Practice General and Site-Specific Mitigation Measures Regarding Dust Control and Pollution Prevention: Operational Phase

Project Aspect	Good Practice General Mitigation Measure	Reference
Management Responsibilities		
Site Management General	• The Duty Manager will have responsibility for ensuring that nuisances and hazards arising from the facility due to dust are minimised. Regular monthly meetings are to be held to discuss current and planned site operations that have the potential to generate dust emissions and any actions minuted.	**Project**
	• The Duty Manager will ensure new starters and existing staff receive a toolbox talk on the issue of dust and effective mitigation. Staff are to be trained to operate equipment and plant without causing excess dust, minimising drop heights, minimising the movement of material, and minimising vehicular speeds on site.	**Project**
	• On at least two occasions each day the Duty Manager shall walk around the yard to identify that all the dust suppression plant is in order and in use where required and no dust is drifting beyond the boundary. Observations and any action taken shall be logged in the site diary.	**Project**
	• Inform the Environment Agency, or any other interested parties, in advance of any significant change to plant or operations and ensure if necessary dust control measures are updated. Similarly notify the parties if it is necessary to undertake some temporary action likely to cause dust.	**Project**
	• On-site water shall be provided for dust control, but all site water shall not directly enter existing watercourses, and instead enter the scheme's filtration systems / attenuation ponds, in order to not pollute the existing watercourses.	**Project**
Material Handling: General	• Minimise drop height of materials.	**Project**
	• Materials will be handled carefully and lowering rather than dropping items considered.	**PCC**
	• Ensure loading operations are regularly dampened down as required.	**PCC**
	• Ensure any potentially problematic loads are not accepted at the site or deposited on the waste reception area.	**Project**
Material Handling: Weather	• Ensure movement of dust generating material is not carried out when high wind speeds are judged to be causing airborne dust and dispersion away from the stockpile areas.	**Project**
	• Stopping external crushing and screening when there is a breeze sufficient to operate the windsock, i.e. 11 -14ms^{-1}, from a southerly direction towards the nearest receptors.	**Project**
	• Stop site operations if all dust control measures have been deployed but dust is still deemed problematic, until climatic conditions have ameliorated or additional controls become available.	**Project**
Site: stockpiles	• Stockpiling should be limited and be dampened down and covered as appropriate.	**PCC**
	• Monitor waste and product stockpiles to ensure they do not exceed the optimum size for effective site operations and dust management.	**Project**
Site: surfaces	• Ensure hard standings are regularly swept and sprayed with water and maintained as required.	**PCC**
	• Ensure good housekeeping is adopted such that all ground and relevant mechanical surfaces are kept free of accumulated dust / fibres.	**Project**
Access Road	• Ensure that the shared main access road is tarmacked, regularly dampened down and maintained as required.	**PCC / Project**
Plant: general	• Modern and well-maintained equipment will be used.	**PCC**
	• Engines of all vehicles, mobile and fixed plant will not be left running unnecessarily and switched off when not in use.	**BCC / PCC**
Plant: movement	• The movement of plant onto and around the site should have regard to the normal operating hours of the site and the location of any PSRs, as far as is reasonably practicable.	**Project**
	• Site traffic will only use designated access routes.	**Project**
	• Ensure the 5 mph speed limit is enforced.	**PCC / Project**
Vehicles: mitigation	• Ensure any high risk load is sheeted.	**PCC / Project**
	• Wheel washing equipment should be provided at the site exit as required.	**PCC**
Staff Responsibilities		
General	• Responsible for supporting the Duty Manager in achieving the items listed above.	**Project**
	• Ensuring that plant is well maintained and measures are taken to ensure that they are not left running for long periods when not in use.	**PCC**
	• Responsible for minimising unnecessary drop heights and movement of material.	**Project**
	• Ensuring when required the dust suppression systems are on and if in-operable, stop work and inform the Duty Manager.	**Project**
	• Responsible for reporting any dust problems immediately to the Duty Manager.	**Project**
	• Attending weekly staff meetings to discuss any dust issues or potential future issues and what can be done to reduce the incident reoccurring and any possible improvements.	**Project**

Note / References:

The general good practice measures identified in this table will be adopted where practicable and appropriate to the scheme.

PCC: Plymouth City Council's 'Control of Pollution and Noise from Demolition and Construction Sites' Version I, July 2013.

BCC: Bristol City Council's Construction Site Guidelines 2011.

Project: Dorton Group, Proposed Waste Transfer Station and Landfill Site, Lower Challonsleigh Farm, Smithaleigh - project specific measures.

6. Potential Impact Assessment – Construction Phase: Air Quality & Dust

Potential Construction Phase Impact: Air Quality

6.1. Traffic flows generated by the proposed scheme during the construction phase will be low in comparison to flows on the existing local road network, and will be temporary in duration. Construction traffic will access the site via routes agreed in advance with SHDC, and will not be permitted to travel through Lee Mill.

6.2. In light of the above, the potential air quality impact of the off-site construction traffic is therefore qualitatively assessed as being of **negligible adverse magnitude**, with a **slight / neutral significance** without mitigation.

6.3. The initial construction works are qualitatively assessed as having the potential to have an air quality impact of **minor adverse magnitude**, with a **slight significance** for short periods for the closest PSRs, but otherwise of **negligible adverse magnitude**, with a **slight significance** without mitigation.

Potential Construction Phase Impact: Dust

Method of Assessment

6.4. A qualitative appraisal has been carried out to assess the potential for a dust impact on the closest PSRs due to the construction works, and associated on-site traffic, required by the proposed development as these are similar but significantly less than operational activities.

6.5. South Hams District Council has legal powers to deal with dust that is a 'statutory nuisance', including that from building and construction sites[22].

6.6. SHDC's Environmental Health Department's Technical Advisor was consulted in January 2017 and stated that the Council do not have their own specific published guidance or policy documents regarding the control of dust from construction sites at that time, and instead refer to generally available guidance and consider 'what is reasonable' on a scheme-by-scheme basis.

6.7. As such, to ensure that dust levels do not cause a nuisance to local residents the current assessment has referred to the Institute of Air Quality Management's '*Guidance on the Assessment of Dust from Demolition and Construction*'[23]. In addition, publicly available guidance documents produced by other Local Authorities and Atkins Ltd's previous technical experience has also been utilised in preparation of this Section of the current report.

Construction Phase: Potential Dust Impact

Off-site Traffic

6.8. Given the low off-site traffic flows generated by the proposed scheme during the construction phase, the potential dust impact of the off-site works traffic is qualitatively assessed as being of **negligible adverse magnitude**, with a **slight significance** without mitigation.

Site Activities and Traffic

6.9. During the initial phases of the project, dust issues may arise due to the site preparation, earthworks and construction activities, and the associated on-site vehicle and equipment movements required by the proposed development (e.g. HGVs, plant vehicles and equipment such as generators and pumps).

22 http://www.southhams.gov.uk/article/1988/Noise-Nuisance and http://www.southhams.gov.uk/CHttpHandler.ashx?id=4667&p=0
23 Institute of Air Quality Management's '*Guidance on the Assessment of Dust from Demolition and Construction*', V1.1, 01/06/2016.

6.10. The development is relatively small in scale and the construction periods should be relatively short.

6.11. The initial construction works are therefore qualitatively assessed as having the potential to have a dust impact of **minor adverse magnitude**, with a **slight significance** for short periods for the closest PSRs, but otherwise of **negligible adverse magnitude**, with a **slight significance** without mitigation.

Construction Phase: Proposed Mitigation Measures

Mitigation Measures: Construction Traffic Management

6.12. Construction traffic will access the site via routes agreed in advance with SHDC, and will not be permitted to travel through Lee Mill.

Mitigation Measures: General Management of Site Activities

6.13. Potential construction phase impacts will be minimised by the adoption of good industry practice for dust control, including adhering to standard site working hours and traffic planning. The Best Practicable Means Not Entailing Excessive Costs (BATNEEC) (Section 72 of the Control of the Pollution Act 1974 and Environmental Protection Act 1990) will be followed in order to minimise dust effects. In addition, the project's Principal Contractor shall consider signing up to the Considerate Constructors Scheme.

6.14. The construction programme and activities required by the proposed development will be identified within a Site Works Management Plan and will be discussed with SHDC by the appointed Principal Contractor.

6.15. The Principal Contractor will appoint a primary point of contact with responsibility for the day-to-day construction activities and to act as the first point of contact regarding dust for the regulatory authorities, other external bodies and the general public.

6.16. In addition to those procedures identified below, all site workers and contractors shall be required to attend site-specific briefings detailing the requirements to adopt 'best practice means' to minimise dust nuisance both on and off site.

6.17. In accordance with the Project Ecologist's requirements all on-site water from the construction phase will not directly enter existing watercourses in order to avoid any associated potential pollution incidents.

Mitigation Measures: Dust

6.18. As a minimum, the general good practice dust mitigation measures identified in the table below shall be adopted as appropriate during the construction phase. In addition, the IAQM's '*Guidance on the Assessment of Dust from Demolition and Construction*' [24] shall be referred to.

24 Institute of Air Quality Management's '*Guidance on the Assessment of Dust from Demolition and Construction*', V1.1, 01/06/2016 - Step 3: Site-specific Mitigation.

Table 6-1 Proposed Good Working Practices regarding Dust Management: Construction Phase

Project Aspect	Good Practice General Mitigation Measures re Construction Dust
Site Management	• An adequate supply of water will be available on site for regular dust suppression purposes to affected areas whenever required e.g. to loading operations, stockpiles, hard standing and unsurfaced haul routes etc. • Wheel washing equipment shall be provided at the site exit as required. • On-site water shall be provided for dust control, but will not directly enter existing watercourses. • On-site vehicle speeds shall be limited to 5 mph, especially over unmade surfaces. • If all dust control measures have been deployed but dust is still deemed problematic, construction works shall be stopped until climatic conditions have ameliorated, or additional controls become available.
Material Handling: General	• The amount of excavated material held on site shall be minimised. • Materials shall be handled carefully, e.g. lowering rather than dropping items, and double-handling of aggregates and excavated material will be avoided wherever possible. • All aggregates being delivered to site must be covered. • Any waste material leaving site must also be covered.
Material Handling: Weather	• Movement of dust generating material shall not be carried out in high wind speeds, and particularly when wind is blowing in the most critical direction (i.e. towards sensitive receptors).
Site: stockpiles	• The amount of stockpiled aggregates held on site shall be minimised; stockpiles shall be dampened down and covered as appropriate.
Site: surfaces	• Hard standings will be regularly swept and water sprayed; dry sweeping of large areas will not be permitted.
Roads	• Public roads and site access routes shall be routinely cleaned as required, using wet sweeping methods if required.
Plant: general	• Plant shall be well maintained and measures taken to ensure that they are not left running for long periods when not in use. • Vehicles and plant working on site shall have exhausts positioned upwards to prevent the disturbance of dust laying on the ground.
Monitoring	• Dust conditions shall be monitored daily. • Inspections and any exceptional incidents on or off site shall be recorded.

Construction Phase: Residual Effects

6.19. There is potential for elevated air quality and dust levels during the construction phase of the proposed development, notably during the required site preparation and earthworks; however these activities will be localised, temporary in nature and of limited duration.

6.20. With the effective management and deployment of the mitigation measures identified above, including potentially signing up to the Considerate Constructors Scheme, there should be no significant residual effects regarding air quality and dust from the construction related activities required by the proposed development for the majority of PSRs.

6.21. As such, the potential residual air quality and dust impact of the construction phase activities is therefore qualitatively assessed as being of **minor adverse magnitude**, with a **slight significance** for short periods for the closest PSRs, but otherwise of **negligible adverse magnitude**, with a **neutral significance**.

6.22. Given the low off-site traffic flows generated by the proposed scheme during the construction phase, and the appropriate management of such traffic, the potential residual dust impact of the off-site construction works traffic is qualitatively assessed as being of **negligible adverse magnitude**, with a **slight significance** for the closest assessed PSRs and managed to a **magnitude of no change**, with a **neutral significance** for the further away PSRs. The potential residual air quality impact of the off-site construction works traffic is qualitatively assessed as having a **magnitude of no change**, with a **neutral significance** for all PSRs.

6.23. The Project Ecologist reviewed the proposed construction phase dust control measures, as outlined above, and commented that in combination with the ecology specific mitigation embedded within the design, there are **no significant adverse residual effects** foreseen on ecological receptors during the construction phase.

7. Conclusions and Recommendations

7.1. Atkins Ltd. has been commissioned by Dorton Group to undertake an air quality, dust and odour impact assessment in support of a planning application regarding the proposed Waste Transfer Station, including buildings and compound, and Landfill Site at Lower Challonsleigh Farm, Smithaleigh, Devon.

7.2. Initially both the Waste Transfer Station and the Landfill Site will be operational, with the associated traffic utilising the site's access road; after the landfill has been completed the scheme will then include the activities and traffic associated with the proposed Waste Transfer Station only.

7.3. The proposed operating hours are as follows:

- Monday to Friday: 07:30 to 18:00 hours; and
- Saturdays: 08:00 to 13:00 hours.

7.4. Dorton Group will adhere to these standard working hours as far as is reasonably practicable. However, for certain temporary activities, it may be necessary to work outside these hours. In this instance, Dorton Group will apply to South Hams District Council for written consent prior to such work commencing, and inform local residents in advance of the proposed activity concerned as appropriate.

7.5. The existing air quality in the local area is primarily influenced by traffic on the A38 Devon Expressway, with additional potential existing sources including other local traffic, farming activities, and existing operations in the vicinity of the proposed site, including the three current waste facilities at Lower Challonsleigh Farm and the neighbouring Strashleigh Hams Inert Processing and Recycling Facility. However, existing levels of nitrogen dioxide and particulate matter values are well below the EU limit and National Air Quality Strategy annual mean objectives of 40µg/m^3 per calendar year and the proposed site is not located within an Air Quality Management Area.

7.6. There have been no known complaints regarding dust associated with Dorton Group's existing waste processing activities at Lower Challonsleigh Farm, which have included stone crushing and sorting at the proposed WTS site.

7.7. The main receptors potentially sensitive to air quality and dust impacts associated with the proposed development during both the construction and the operational phases are nearby residential, commercial, educational and community properties, areas utilised by humans and nearby County Wildlife Sites.

7.8. It is proposed that the right turn at the centre of Lee Mill, that facilitates the A38 'U-turn' in the village, is made subject to a weight ban. This will avoid the scheme's off-site HGVs causing any associated air quality and dust impacts in Lee Mill, which could otherwise potentially cause a significant impact due to the close proximity of residential properties to the main road through Lee Mill. The associated small increase in HGV traffic re-routed via the Ivybridge junction will have limited air quality and dust impacts at Ivybridge and will not unduly affect the Western Road AQMA.

Potential Impact - Operational Phase: Air Quality

7.9. The potential residual impact on air quality from the combined off-site operational traffic is qualitatively assessed as being of **negligible adverse magnitude** with a **neutral significance** with mitigation.

7.10. The potential residual impact on local NO_2 air quality from the operational site activities can be managed to a **magnitude of no change**, with a **neutral significance** for all of the assessed Potentially Sensitive Receptors.

Potential Impact - Operational Phase: Dust

7.11. The intended operations have the potential to give rise to fugitive dust from the proposed Landfill Site, the Waste Transfer Station Compound and the site access road.

7.12. Sensitive receptors are likely to be downwind of the proposed operations for a relatively small proportion of time, however accurate modelling of the possible dispersion of fugitive dust has not been possible.

7.13. Therefore a precautionary principle should be applied and mitigation measures should be adopted to ensure no dispersion of fugitive dust from the operation area.

7.14. It is proposed that the shared main access road will be tarmacked, and the WTS site itself will include a concrete finished apron in the main operating areas. Both of these surfaces will assist in minimising the generation of dust if regularly dampened down and maintained as required.

7.15. With reference to the IAQM Guidance, the overall risk of dust impact from the landfill operations is assessed as Medium Risk based on a high receptor sensitivity and medium dust emission magnitude with respect to the nearest receptors to Phase 1, and Low elsewhere. The overall risk of dust impact from the WTS operations is considered to be Low Risk. Therefore the site will need to apply approved dust mitigation measures to minimise the potential for offsite dispersion and ensure that background local PM_{10} is not increased and complaints do not arise from deposited dust.

7.16. With the effective management and deployment of the identified mitigation and monitoring measures it is considered that the potential residual impact of operational dust from the proposed scheme during both the combined phase of the WTS and Landfill Site and the WTS alone (both including access road traffic) can be managed to a **magnitude of no change**, with a **neutral significance** for all of the assessed Potentially Sensitive Receptors.

7.17. Given the low off-site traffic flows generated by the proposed Dorton Group and Wood Yew Waste schemes during the operational phases, and the appropriate management of such traffic, the potential residual dust impact of the off-site operational works traffic is qualitatively assessed as being of **negligible adverse magnitude**, with a **slight significance** for the closest assessed PSRs and managed to a **magnitude of no change**, with a **neutral significance** for the further away PSRs.

7.18. With the effective application of the operational stage dust control measures identified above, in combination with ecology-specific mitigation embedded within the design, there are **no significant adverse residual effects** foreseen on ecological receptors.

Potential Impact - Construction Phase: Air Quality

7.19. Traffic flows generated by the proposed scheme during the construction phase will be low in comparison to flows on the existing local road network, and will be temporary in duration and appropriately managed. As such, the potential residual air quality impact of the off-site construction works traffic is qualitatively assessed as having a **magnitude of no change**, with a **neutral significance** for all PSRs.

7.20. The potential residual air quality impact of the construction phase activities is qualitatively assessed as being of **minor adverse magnitude**, with a **slight significance** for short periods for the closest PSRs, but otherwise of **negligible adverse magnitude**, with a **neutral significance**.

Potential Impact - Construction Phase: Dust

7.21. There is potential for elevated dust levels during the construction phase of the proposed development, notably during the required site preparation and initial earthworks, however these phases will be localised, temporary in nature and of limited duration.

7.22. With the effective management and deployment of the identified mitigation and management measures, and potentially signing up to the Considerate Constructors Scheme, there should be no significant residual effects regarding dust from the construction related activities required by the proposed development for the assessed PSRs.

7.23. As such, the potential residual dust impact of the construction phase activities is therefore qualitatively assessed as being of **minor adverse magnitude**, with a **slight significance** for short periods for the closest PSRs, but otherwise of **negligible adverse magnitude**, with a **neutral significance**.

7.24. Given the low off-site traffic flows generated by the proposed scheme during the construction phase and the appropriate management of such traffic, the potential residual dust impact of the off-site works traffic is qualitatively assessed as being of **negligible adverse magnitude**, with a **slight significance** for the closest assessed PSRs and managed to a **magnitude of no change**, with a **neutral significance** for the further away PSRs.

7.25. With the proposed construction phase dust control measures, in combination with the ecology specific mitigation embedded within the design, there are **no significant adverse residual effects** foreseen on ecological receptors during the construction phase.

Appendices

Appendix A. Figures

A.1 Site Location Plan

A.2 Proposed Site Layout Drawing: Landfill Phases

A.3 Proposed Site Layout Drawing: Waste Transfer Station

A.4 Site Context – Neighbouring Existing Operations and Potential Sensitive Receptors

0 10 MILLIMETRES 100

DO NOT SCALE

EXISTING AND PROPOSED SITE

SPARKWELL CP

ERMINGTON CP

IVYBRID

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS / RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING:

ITEM	HAZARD	RISK

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT

NOTES

1. DO NOT SCALE FROM THIS DRAWINGS
2. ALL MEASUREMENTS ARE IN METERS UNLESS STATED OTHERWISE

N

REV	DESCRIPTION	BY	DATE	CHK'D	AUTH
1	FOR INFORMATION	ESG	10/01/2017	ATF	ATF

DRAWING STATUS: FOR INFORMATION

SUITABILITY: S3

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CLIENT:
Dorton Group De-Construction Engineers

PROJECT:
Challonsleigh Farm
Proposed Waste Transfer Station and
Proposed Inert Landfill

Appendix A.1

TITLE:
Site Location Plan

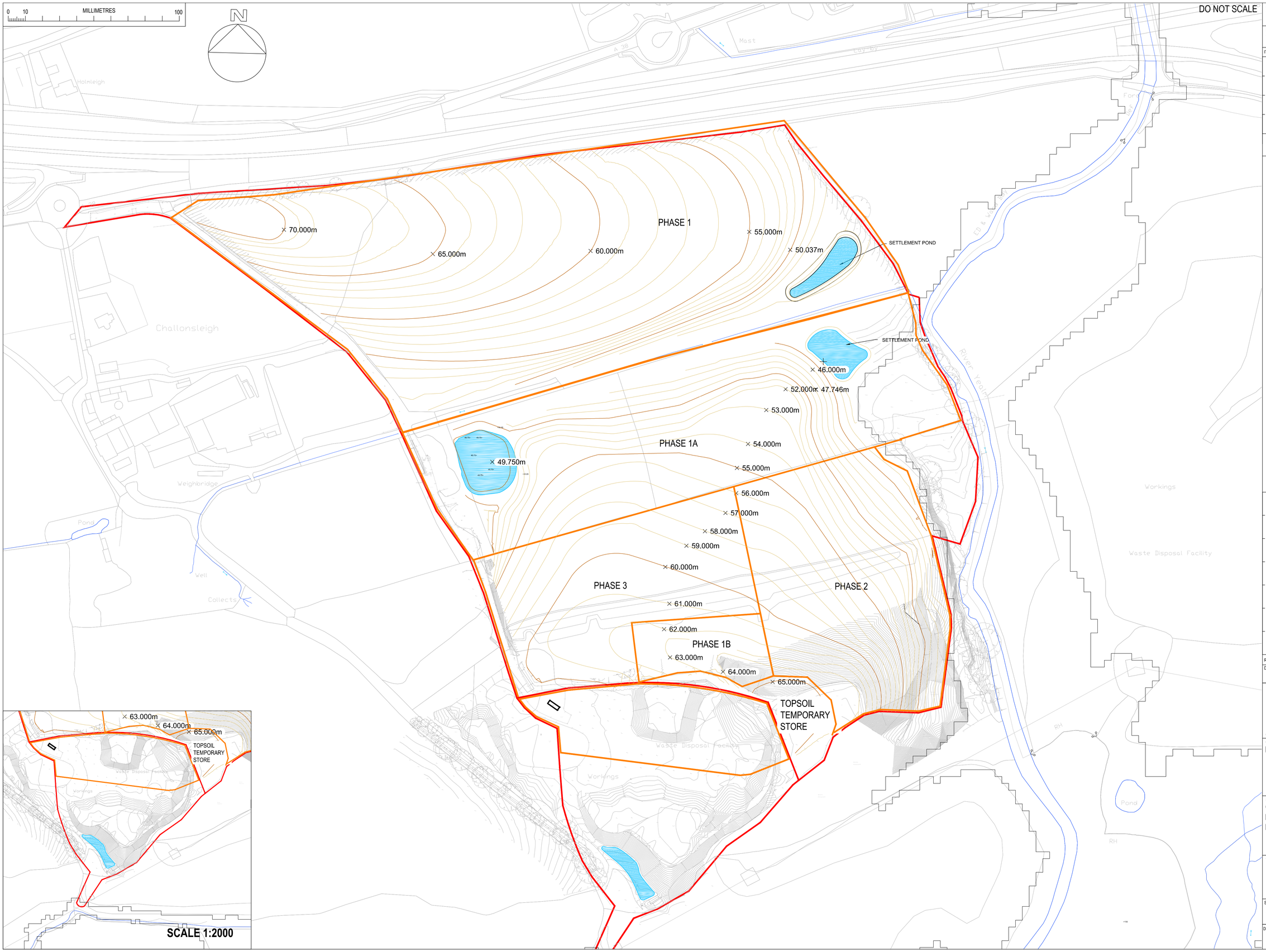
SCALE:	ORIGINAL SIZE:	DESIGNED:	DRAWN:	CHECKED:	AUTHORISED:
1:10.000	A1	TRG	TRG		
	OFFICE:	DATE:	DATE:	DATE:	DATE:
	EXETER	17/06/2016	17/06/2016		

DRAWING NUMBER: 5149237-ATK- XX- ZZ-DR-C- 0001

REV: 001

0 10 MILLIMETRES 100

DO NOT SCALE



SCALE 1:2000

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS / RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING:

ITEM	HAZARD	RISK

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT

NOTES

1. DO NOT SCALE FROM THIS DRAWINGS
2. ALL MEASUREMENTS ARE IN METERS UNLESS STATED OTHERWISE

KEY:

- RED LINE BOUNDARY
- PHASES BOUNDARY
- PROPOSED SURFACE CONTOURS

REV	DESCRIPTION	BY	DATE	CHK'D	AUTH

DRAWING STATUS: FOR INFORMATION

SUITABILITY: S0

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CLIENT:
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PROJECT:
Challonsleigh Farm
Proposed Waste Transfer Station and Proposed Inert Landfill

Appendix A.2

TITLE:
PHASES

SCALE:	ORIGINAL SIZE:	DESIGNED:	DRAWN:	CHECKED:	AUTHORISED:
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	OFFICE: EXETER	DATE: 06.05.2016	DATE: 06.05.2016	DATE: 06.05.2016	DATE: 06.05.2016

DRAWING NUMBER: 5149237-ATK- XX ZZ-DR-C- 029

REV: 0

0 10 MILLIMETRES 100

DO NOT SCALE

EXISTING TARMAC ACCESS ROAD ~4.5m WIDE

GATED SITE ENTRANCE.

EXISTING TARMAC TURNING HEAD PROPOSED LANDFILL ENTRANCE.

SOILS TREATMENT AND STORAGE AREA.

15M WEIGHBRIDGE WITH OFFICE RAISED TO CAB LEVEL

ACCESS ROAD TO BE WIDENED, WEIGHBRIDGE +5.5m

EXISTING TARMAC ROAD TO BE WIDENED TO ACCOMODATE ADDITIONAL WIDTH AROUND WEIGHBRIDGE.

PROPOSED TURNING CIRCLE (20m Ø) TO ALLOW WEIGHED LOADS TO RETURN TO LANDFILL ENTRANCE.

WTS ENTRANCE ONE WAY SYSTEM

PROPOSED WASTE TRANSFER STATION 61.86m X 30.50m, 7.9m TO EAVES

INDICATIVE 1m WIDE PAINTED PEDESTRIAN WALKWAY

6m WIDE ACCESS ROAD

STAFF AND VISITOR PARKING 5 SPACES

PACKAGED WASTE TREATMENT PLANT

3.5m WIDE MAINTENANCE ACCESS TRACK

WTS EXIT ONE WAY SYSTEM

OFFICE

OFFICE

WC

ACCESS DOOR

FFL = 60m AOD

EXIT DOOR

FFL = 60m AOD

ASBESTOS COMPOUND SURROUNDED BY 2.4m HIGH PALISADE FENCE

SKIP LOADER TURNING AREA TO ALLOW REVERSING ONTO SKIPS

ASBESTOS BULKING AREA 4no. 40 CUBIC YARD LOCKABLE ASBESTOS SKIPS MAX 40t MATERIAL ON SITE AT ANY ONE TIME

LOCKED 10m SECURITY GATE

EXISTING SITE BOUNDARY.

GENERAL AGGREGATES CRUSHING, SCREENING, SORTING AND STORAGE AREA.

EXISTING ACCESS TO ADJACENT FIELD TO BE MAINTAINED

PROPOSED SETTLEMENT WATER RETENTION POND 423m².

LEGEND

- PROPOSED WASTE TRANSFER STATION SITE BOUNDARY (TO ALIGN WITH EXISTING SITE)
- PROPOSED LANDFILL SITE BOUNDARY
- 2.4m HIGH PALISADE FENCE

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS / RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING:

ITEM	HAZARD	RISK
02	OVERHEAD POWER LINES ACROSS SURFACE ROAD	
01	OPERATIONS AGGREGATE RECYCLING YARD	

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT

NOTES

1. DO NOT SCALE FROM THIS DRAWINGS
2. ALL MEASUREMENTS ARE IN METERS UNLESS STATED OTHERWISE

KEY

- NEW ROADS
- WASTE TRANSFER STATION
- ASBESTOS BULKING AREA
- OFFICES AND WC
- ASBESTOS YARD
- PROPOSED SURFACE CONTOURS

REV	DESCRIPTION	BY	DATE	CHK'D	AUTH
004	AMENDED BUND CONTOURS	JDP	13/12/2017	ATF	ATF
003	FOR INFORMATION	ESG	10/01/17	ATF	ATF
002	AMMENDED ASBESTOS YARD	JA	04/08/16	ATF	ATF

DRAWING STATUS: FOR INFORMATION

SUITABILITY: S3

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CLIENT: Dorton Group De-Construction Engineers

PROJECT: Challonsleigh Farm
Proposed Waste Transfer Station and
Proposed Inert Landfill

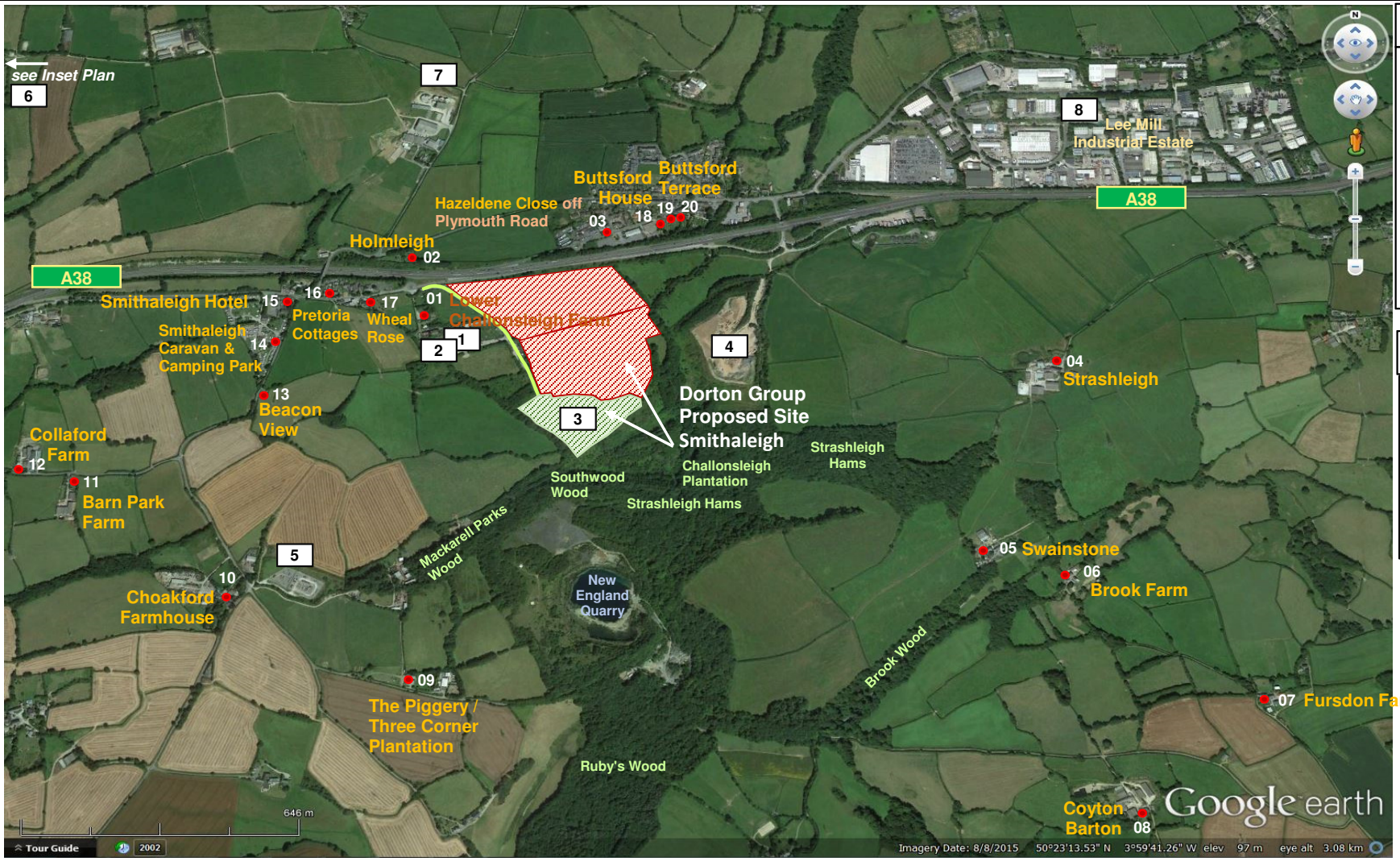
Appendix A.3

TITLE: Proposed Site Plan Waste Transfer Station Recycling Facility And Site Layout

SCALE:	ORIGINAL SIZE:	DESIGNED:	DRAWN:	CHECKED:	AUTHORISED:
1:500	A1	TRG	TRG	ATF	ATF
	OFFICE: EXETER	DATE: 17/06/2016	DATE: 17/06/2016	DATE: 17/06/2016	DATE: 17/06/2016

DRAWING NUMBER: 5149237-ATK-XX-ZZ-DR-C-0006

REV: 004



Nearby Existing Operations

1. SITA UK Ltd
2. Wood Yew Waste
3. Dorton Group Recycling Facility
4. Strashleigh Hams Recycling Facility
5. Langage Choakford Corner
6. Langage Power Station
7. Langage Anaerobic Digestion
8. Lee Mill Industrial Estate

Inset Plan

- Potentially Sensitive Receptor (PSR) (approximate)
- Vehicular Entrance / Exit - Circulation
- Proposed WTS Compound (approximate)
- Proposed Landfill Site (approximate)
- A38 Devon Expressway

ATKINS

Based on GoogleEarth Map

Drawn:	Checked:	Authorised
CSM	TRG	ATF
Date	Date	Date
15/12/17	15/12/17	15/12/17

Project: **Dorton Group Lower Challonsleigh Farm Proposed WTS & Landfill Site AQ D O Impact Assessment**

Title: **Site Context – Neighbouring Existing Operations and Potential Sensitive Receptors**

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tel 01392 352900
fax 01392 352999

Scale: **Not to Scale**

Appendix A.4

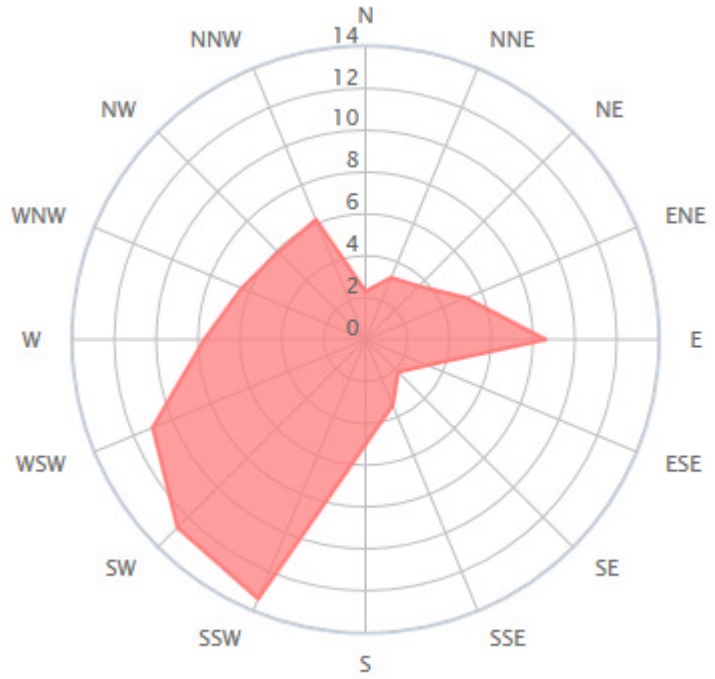
Rev: **02**

Appendix B. Weather Data

B.1 Windrose Data – Mountbatten, Plymouth

Wind Rose for Mountbatten, Plymouth (Jan 2008 – Dec 2016)

Wind Direction Distribution (%)

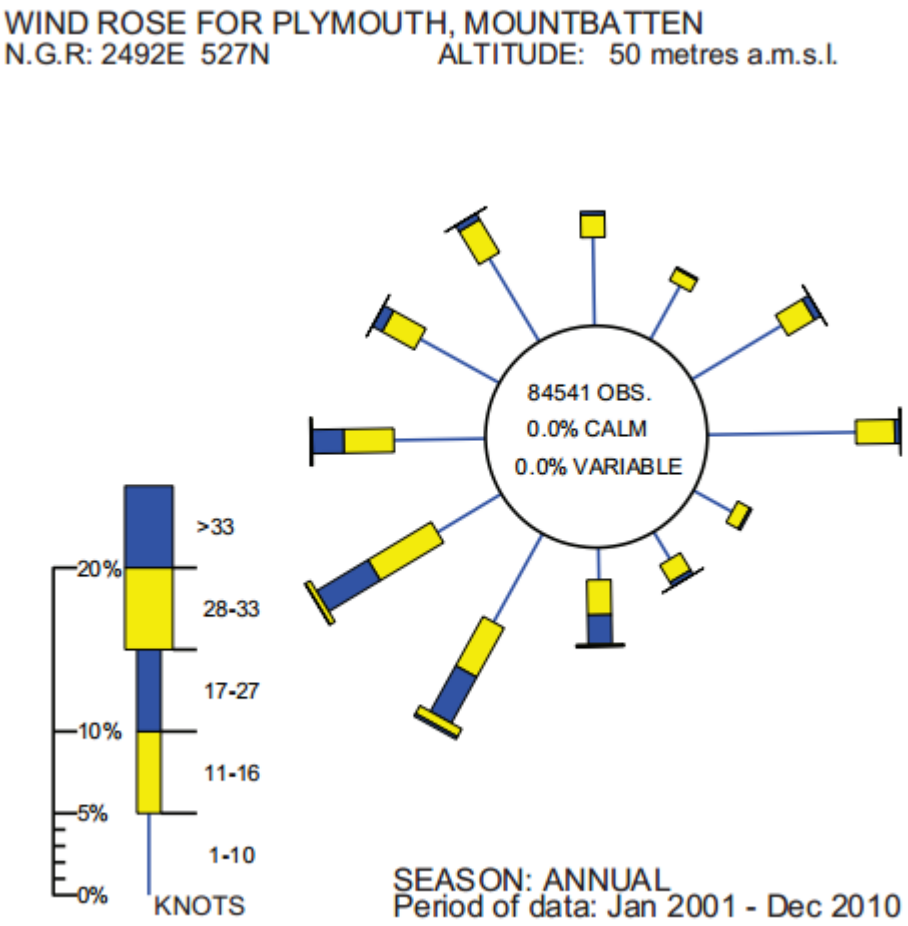


Statistics based on observations taken between 01/2008 - 12/2016, daily from 7am to 7pm local time.

Default units are knots.

Source: https://www.windfinder.com/windstatistics/mount_batten_plymouth

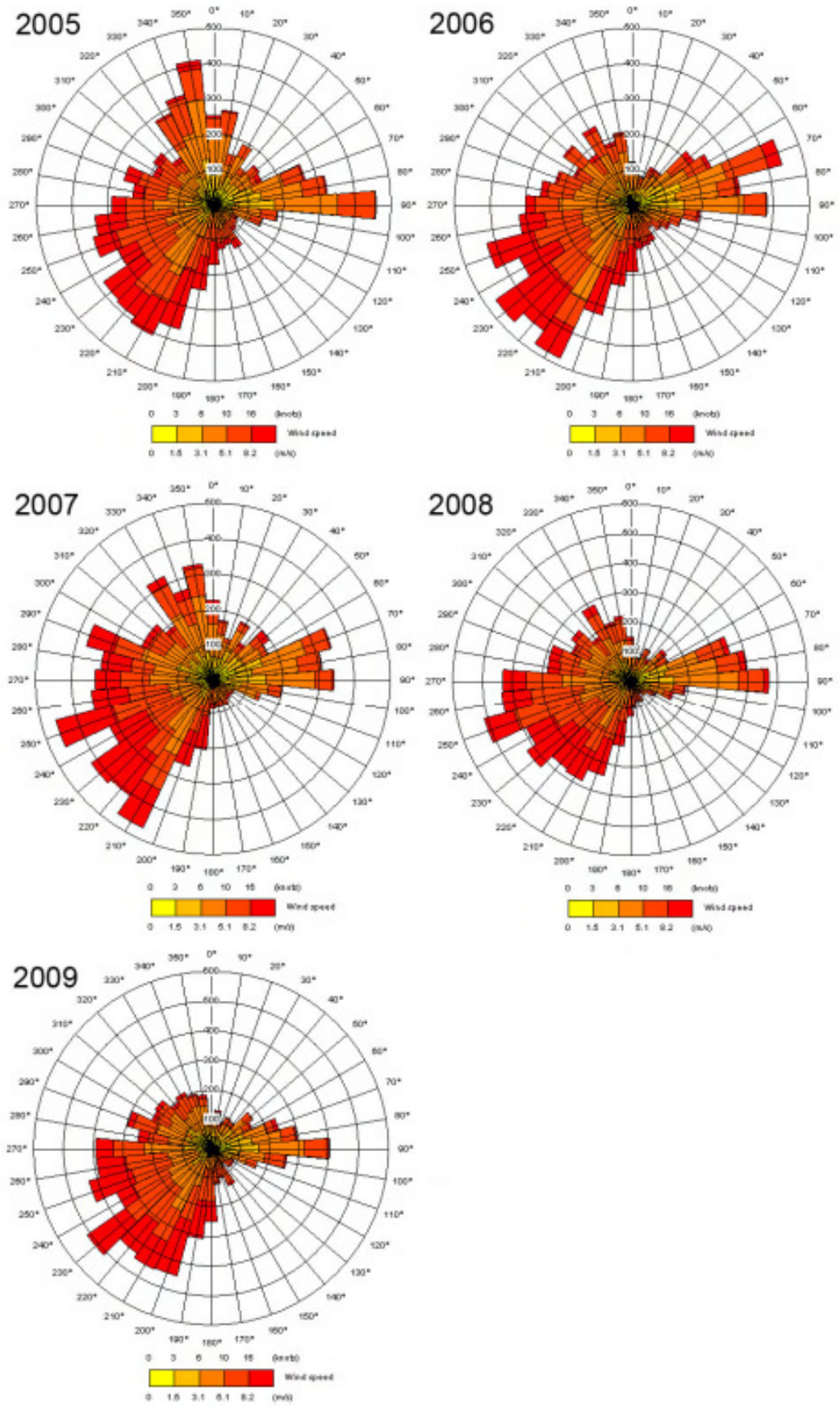
Wind Rose for Mountbatten, Plymouth (Jan 2001 – Dec 2010)



Source: Chartered Institution of Building Services Engineers

http://www.cibse.org/getmedia/918bf576-a525-4f64-a1f4-f837f1e1a499/Wind-roses-(UK).pdf.aspx

Wind Roses for Mountbatten, Plymouth (2005 – 2009)



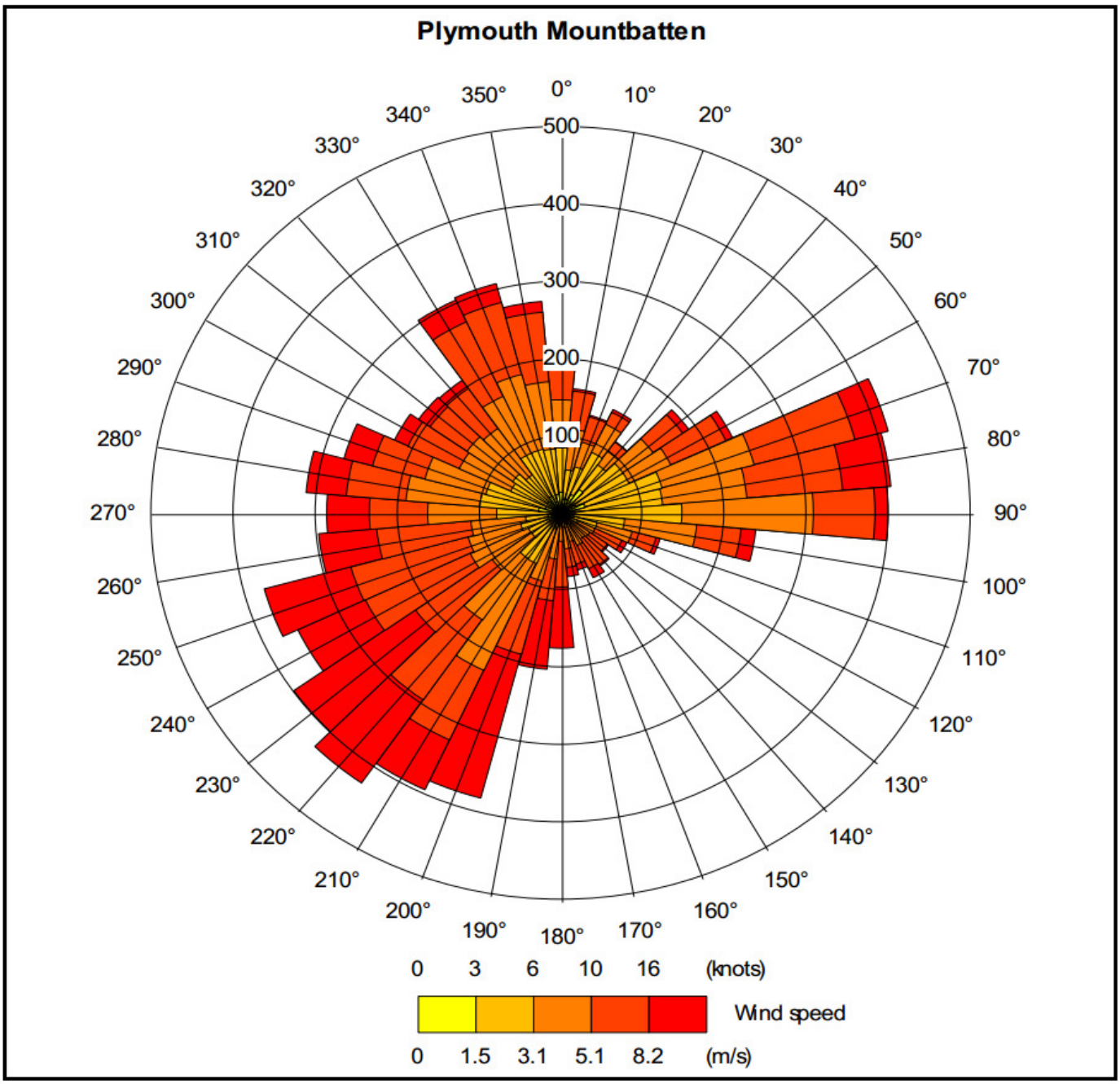
Source: Energy from Waste Combined Heat and Power Facility, North Yard, Devonport, Plymouth, Air Quality Dispersion Modelling Report, Figure 3.1, May 2011, Scott Wilson (Planning Application 11-00750-FUL, Environmental Statement, Appendix 13.1).

N.B. the wind roses above show the direction from which the wind is blowing, not the direction to which the wind is blowing.

https://planning.plymouth.gov.uk/online-applications/files/D7C283B919D43FBCDF314B6D3CF80373/pdf/11_00750_FUL-ES_Volume_3_Part_7_-_Appendices_13.1_-_13.1c1-117242.pdf

Typical Meteorological Year

Wind Rose for Mountbatten, Plymouth (2001)



Station	Name (Short)	Station Grid	Station X Coordinate (m)	Station Y Coordinate (m)	Station Elevation (m)	Wind Direction (degrees)
PLYMOUTH MOUNTBATTEN	PLYM	OS	249219	52714	50	90

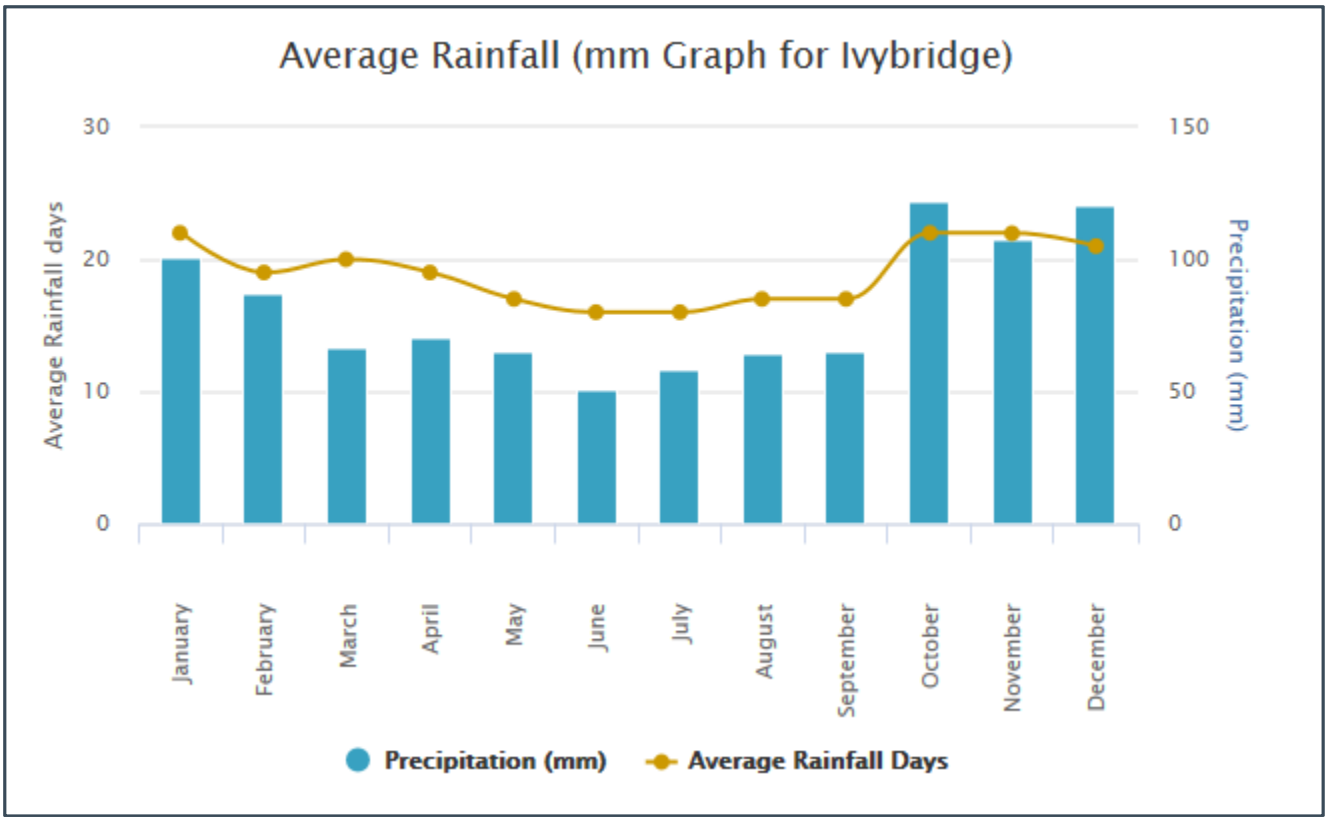
Source: Project UKPIR15, Final Report for SCAIL Combustion, Figure C20, May 2010, EA, NIEA, SEPA and SNIFFER.

http://www.scail.ceh.ac.uk/combustion/SCAIL-Combustion_Final_Report.pdf.

B.2 Rainfall Data – Ivybridge, Devon

Average Rainfall (2000 – 2012)

Ivybridge, Devon, PL21



Month	Average Rainfall Days (No.)	Precipitation (mm)
January	22	101
February	19	87
March	20	67
April	19	71
May	17	66
June	16	51
July	16	59
August	17	64
September	17	65
October	22	122
November	22	107
December	21	120
Total	**228 days / year** **62.5 %**	**980 mm / year**

Source: https://www.worldweatheronline.com/v2/weather-averages.aspx?q=pl21

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